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ARTICLE XIX.

REPORT ON VACCINATION.

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Communicated to the Chicago Medical Society.

MR. PRESIDENT AND GENTLEMEN:—Your Committee, to whom was referred the subject of vaccination, having had the same under careful consideration, beg leave to submit the following report:—

In order to duly appreciate the great boon conferred upon the human family by the introduction of vaccination, we must bear in remembrance the great ravages of small-pox previous to the discovery of the preventive.

It is deemed proper to incorporate in this report a very brief history of variola. The period at which small-pox was first observed, is not definitely known. It may have been coincident with the birth of man. It may not have appeared until long after the origin of the human race. That it was of very ancient origin, we have an abundance of historical testimony. I believe there is no recorded history which warrants us in saying that it has had a longer existence in any part of the world than in India and China, where their histories claim that it has prevailed from time immemorial. It is said to have shown itself in Arabia about the time of the birth of Mohammed, and to

have subsequently invaded Syria, Egypt, and Southern Europe, with the armies of his successors.

We are destitute of any satisfactory proof that it was known to either the ancient Greeks or Romans. The mortality from the disease, always great, was at times terrible. Nothing so positively demonstrates the progress of medical science as to compare the means at our disposal to check its ravages, with those at the command of physicians, previous to the discovery of vaccination, by the immortal Jenner. So large a proportion of the cases of small-pox in our day present themselves in a modified form, occurring in persons who have at a former period been vaccinated, that the average mortality has been greatly reduced. We also believe that improved methods of treatment have been productive of similar though less marked results.

To such an extent have the horrors of variola been mitigated, that the public are exhibiting signs of apathy, and are to a considerable degree neglecting to avail themselves of those means, which alone have stripped small-pox, of those terrible consequences which formerly attended it. We propose to insert some mortuary statistics in order to illustrate the natural history of the disease, in communities where, or in persons in whom, it has not been influenced or modified by previous vaccination.

Prof. Hewitt, of London, associated with the St. Mary's Hospital Medical School, says that, out of every 100 persons attacked, about 35 die.

In the case of children under five years of age, out of every 100 attacked, 50 will die. From the age of five to ten, out of every 100 attacked, 27 will die; from ten to fifteen, 23 will die; from fifteen to twenty, 26 will die; from twenty to twenty-five, 40 will die; from twenty-five to thirty, 45 per cent. will die; from thirty to thirty-five, 57 per cent.; from forty to sixty, 69 per cent.; and between sixty and ninety, the mortality is 75 per cent. It will be observed that the mortality is the largest among the very young and old. Of 2,654 patients admitted, during sixteen years, into the London Small-pox Hospital, affected with the disease and unvaccinated, 996 died, which is 37 per cent.

In Sweden, in the twenty-eight years before the introduction of vaccination, the deaths from small-pox were 2,050 per annum for every million of the population. Forty years afterwards, they were but 158 per annum for every million of the people. In Westphalia, between 1776 and 1780, the death-rate from small-pox was 2,643 per annum for every million inhabitants; but, after vaccination was well established, it was but 114. In Copenhagen, for the last fifty years of the last century, the deaths were 3,128 per annum for every million of persons; but the first fifty years of the current century gave but 286 per annum for the same number of the population.

The above mortality is almost inconceivable, yet nevertheless true. The modified form of the disease is attended with much less mortality, the per centage depending upon the goodness and efficiency of the vaccination. The above statistical observations do not fully demonstrate the deplorable consequences of the malady. A very large number of those who are permitted to recover, do so at the expense of beauty and former health. Not only does small-pox kill its 35 per cent. of those whom it attacks, but the disfigurement by scars, loss of vision, permanently shattered health, make the disease doubly unwelcome.

Many a maiden, formerly noted for her beauty,—many a manly youth, formerly full of ambition, industry, and talent, accustomed to indulge in high aspirations,—arises from a bed of small-pox to behold themselves again, not as formerly, but now possessed for all the future, of hideous and repulsive countenances. In many instances, such unfortunates have yearned for death, and sought and obtained the grave of a suicide. In consideration of the above, it is not wonderful that physicians from an early period exercised their ingenuity to obtain some means by which they would be enabled to ameliorate the consequences of the disease. But little progress was made in that direction until the discovery of inoculation. When, where, and by whom inoculation was first performed, is involved in much obscurity, and perhaps will never be positively ascertained.

As a means of rendering small-pox milder and more tract-

able, the inoculation of the disease was practiced for a long period by some of the nations of Asia, before its benefits were known to Europeans. It was practiced in Constantinople about 1700; it was introduced into England early in the year 1721, by the celebrated Lady Mary Wortley Montague, whose husband had been an English ambassador at Constantinople. In June, 1721, it was introduced into America by the Rev. Cotton Mather, under the direction of Dr. Boylston, of Boston. It was performed in different ways, but mostly in a manner similar to that to which we resort in performing vaccination. It was unquestionably, after a brief period had elapsed, regarded with much favor. It succeeded in disarming the disease of some of its most frightful features, and sensibly diminished its mortality; but its benefits were not unadulterated, notwithstanding its advantages outweighed its disadvantages: there were objections to its use. It would probably do good—possibly harm. It multiplied the *foci* of contagion; had, in consequence, a tendency to perpetuate small-pox and cause it to frequently prevail as an epidemic, while previously long intervals often elapsed during its absence. Occasionally death resulted, although Gregory says that, if carefully managed, not more than one death would occur in five hundred cases. We believe this estimate too small.

Happily Jenner comes to our aid in 1798, and, by his invaluable discovery, renders entirely unnecessary the further performance of the operation. Subsequent to Jenner's discovery, laws were passed in many of the American States, prohibiting inoculation. Pennsylvania passed such a law in 1811, attaching a heavy penalty for its violation. It was also prohibited by law in Great Britain, though we believe not until the year 1840. Asia and Africa, the most ancient seats of small-pox, still avail themselves of this mode of palliation.

We would not have said even thus much about inoculation had it not have been for an effort that had been made by an eminent physician and scholar to revive it. I allude to Prof. Dickson, of Philadelphia, who occupies the Chair of Practice of Medicine in the Jefferson College. In the July number of



the American Medical Journal for 1862, he publishes a very able article in advocacy of its revival. It seems that he was induced to publish such a recommendation from the facts embraced in the annual report on Meteorology and Epidemics for 1861, read by Dr. Jewell to the Philadelphia College of Physicians. There was, during a part of the year 1861, a general prevalence of the exanthemata in Philadelphia, resulting in a very heavy mortality, especially from small-pox. There died in that city, during the year 1861, 758 persons from small-pox, which was twice as great a number as had died in any year except 1852, during the current century.

He seems to have entertained the idea that vaccination was a partial failure, and the deficiency should be supplied by inoculation. He says "we cannot avoid being shocked at this retrograde exhibition and shrinking from the acknowledgment of professional failure and defeat which it seems to imply." He recommends a combination of the two, "inoculation, superimposed upon vaccination." Prof. Dickson could not have had in his mind Doctor Woodville's evidence, given before a commission appointed by the British Parliament to inquire into the subject in 1802, who says "that within the two years, 1799 to 1801, 7,500 persons were vaccinated at the Small-pox Hospital, of whom about one-half were subsequently inoculated with small-pox matter, and in none of them did small-pox produce any effect. Though no doubt the result would have been different had the inoculation been deferred for some years. We know of no experiments of this nature that have been performed recently, except those of Dr. Darrach, of Philadelphia, who inoculated three of his children with small-pox matter who had been vaccinated in infancy. The children were aged 12, 13, and 14. In two there was a slight local affection, without any fever or eruption. In the third case, there was local affection without fever, but with papular eruption on the seventh day, not advancing to vesicles.

As this subject is one of such vast importance, we will allow the eminent Professor to speak for himself. He says, "Indeed, so much are the violence, the suffering, and the proportional

mortality of small-pox diminished by inoculation, that I would advocate unhesitatingly the propriety of universal inoculation at as early a period of life as was ascertained by repeated experiment to be safe and allowable. I would have such inoculations repeated at short intervals, until in every subject the point of absolute incapacity to receive the affection was fairly reached. This would happen in the majority of instances with the first efficient insertion of the virus. Those who had gone through this process would be proof for the future against the pestilence; and, as to them, it would be annihilated—virtually exterminated. And as all constitutional peculiarities are hereditarily transmitted, whether of original organization or in any way acquired, so this antiproclivity or acquired immunity would go down increasing in force with every generation, until the whole race would become insusceptible of this horrid mode of dying. Let us procure that it shall be ordained that every child shall undergo vaccination by some expert within a month after birth; that, as soon as the constitution shall have gone through its influence, inoculation with variolous matter shall be performed, and repeated at brief intervals."

We regard all this, although uttered by an experienced and erudite man, as mere utopian speculation. It would be almost impossible to carry into effect such a plan, even though it were advisable. Neither is it proven that persons so treated would be any more thoroughly protected than those who would have performed upon them the same number of vaccination repetitions. We had under our care this winter quite a severe case of varioloid in a woman who had in youth-time been inoculated. She insisted, previous to the attack, that she was safe, although hourly exposed to the infection of variola. In Davy's tables, 97 are set down as having had small-pox previously. He mentions as authentic the case of a woman, mother of ten children, who had small-pox eleven times! first in infancy, and afterwards when each of her children had it, and the last attack as severe as the first. If medical testimony can be relied upon, there have been many similar instances. No intelligent physician calls in question the fact that a person may have a

second attack of the disease, and that a second attack is not always life protective. The same difficulties will attend re-inoculations that attend vaccinations; persons will be equally neglectful under either system. We are opposed to the retrograde movement, and do not favor the reintroduction of inoculation, but insist that we have in vaccination a safe and certain preventive, not simply a palliative or modifier, as some choose to call it; but I firmly believe that we must handle it differently from what we do. We must obtain from it all the power it possesses, if we would exterminate the loathsome and pestilential affection. We will now briefly glance at the history of vaccination, after which we will express our views as to the manner in which it should be used, if we would accomplish all that we desire. That a disease sometimes appeared in the cow, which, if imparted to man, secured him against small-pox, was known long anterior to the time of Jenner. This fact was acted upon to a limited extent in different parts of the world, as in India, Persia, and some parts of South America. In some of the dairy counties of England, it was long since observed that the cows were subject to a pustular eruption, and the popular belief was, that if this disease was communicated to man, that he was safe from the influence of small-pox. To this circumstance, Dr. Edward Jenner directed his attention early in life. He was not, as is ordinarily supposed, the first to practice the artificial communication of the vaccine disease. But no one shares with him the credit of having brought the art into almost universal use. The inestimable advantages which have accrued to the human family, have immortalized him. He met with violent opposition, but we are truly thankful that his ardent enthusiasm, amidst all his discouragements, was not extinguished. The British Parliament recognised his claim and voted him £30,000 sterling.

It was in 1796, that Dr. Jenner made his first successful experiment. He was then residing in Gloucester county, in England, largely engaged in inoculation. He ascertained that those in whom the matter from the cow was introduced, were insusceptible to inoculation. His first vaccination was per

formed in 1796, upon a boy aged 8 years. In 1798, he published his investigations in an essay, entitled "Inquiry into the causes and effects of variola, vaccinal." In this paper he set forth his proofs so prominently that they attracted immediate attention and soon enlisted a host of co-operators. His assertions were verified. In 1799, it was introduced into the United States, and in 1800, into France and other parts of continental Europe. Jenner, in his first essay, announced as his conviction that when cow-pox had passed in a perfect manner through the system, that it was secure from the infection of small-pox forever. This opinion was mutually entertained by most of the physicians in Europe and America, until 1818. During that year an epidemic of small-pox pervaded Scotland; and many of those who had been vaccinated were its victims. Soon after, the same was observed in other localities. These facts stimulated physicians to make a more close investigation. The confidence of some was shaken in its prophylactic value, and I am sorry to confess that there are those among us to-day, prominent in the profession, who advise a return to inoculation. We have already stated that we are not of that number. Many great and good men have entertained the happy thought that vaccination was destined to make small-pox a disease of the past.

That future generations should have no personal knowledge of it, but, in order to accomplish this much-desired object, we must have universal vaccination and universal re-vaccination. Unless compulsory laws are passed, this will not be done. It must not be left optional with the people, a mere voluntary act. There will be in every community those who will be negligent and apathetic; others who will doubt its prophylactic virtues and discourage the operation. The United States, in this particular, are far behind many of the European nations. Many of the latter have laws requiring the operation, and they are not violated with impunity. In such communities, small-pox is almost unknown, except when carried into them by strangers. An Act of Parliament went into force in Ireland, on the 1st of January of this year, making it compulsory that

every child, born after that date, should be vaccinated within six months. For non-compliance with this regulation, parents and guardians are liable to a fine of ten shillings. We sincerely hope that this law will be enforced, and that, in due season, we will not witness so large a number of the noble and toil-worn sons and daughters of the Emerald Isle come to us with such disfigured countenances. We think the above law is somewhat objectionable for not making the limit three months instead of six, and not providing for re-vaccination. Dr. Jewell, of Philadelphia, says, in one of his annual reports, "That he desires to impress upon the Profession the inadequacy of voluntary provision to secure us from the ravages of small-pox. And further, that nothing less than a compulsory law, with a penalty attached for its violation, will prove an effectual barrier." Another eminent writer says, that "the absence of an efficient system of protection should be stigmatized as a national disgrace—almost a national crime." Another, equally eminent, says, "Believing, however, as I do, that the introduction and propagation of this pestilence are well enough understood for all practical purposes, I do regard all governments as responsible for the institution of proper and relevant efforts at prevention and circumscription, and deeply guilty when this is neglected." These are our views, with a certain degree of limitation. Guilt implies knowledge. If a government is ignorant, and acts prejudicially to the welfare of the people, we question the guilt. But if fully informed, and then acts in opposition to the best interests of its constituents, none can doubt the guilt. We believe there is no compulsory law in this city bearing upon vaccination. We assume that our municipal government is ignorant of its necessity. We think that it behoves this Medical Society, as the representatives of the Profession in this city, to inform them of the importance of such a law. That it will then be their duty to pass such an ordinance, and also to see that it is enforced. Neither should they rely upon our noble and philanthropic Profession to vaccinate gratuitously all who are unable to pay. We recommend that this Society shall advise them to appoint vaccinators for

the poor, at a reasonable annual salary. Also, that they shall prohibit any vaccinations, except performed by experts; that the public vaccinator shall be required to assist in a rigid enforcement of the law; that every child, born or brought to this city, shall be vaccinated within a limited period of time, and that a heavy penalty shall be impartially imposed for every violation of said law. If such a law had have been in existence in this city, and enforced even one year ago, what a world of suffering would have been saved! The lives of a large number of infants and children would have been preserved to have taken their places in the great and busy hive of the world. Many of the poorer classes feel their inability to recompense a physician who is qualified to vaccinate. They are compelled to resort to illiterate quacks who are not capable of judging as to the protective power of the so-called vaccinations; and who, placing but a small valuation upon their services, charge but a mere pittance. During last August, we witnessed, in the North Division, on Larrabee and Kingsbury streets, some of the deplorable consequences of the above. Within a small circuit there were many cases of small-pox and several deaths, among very young children. We were informed that they had no confidence in the protective power of vaccination. They based their convictions upon the fact that some four children, who had been vaccinated the spring previously, had contracted variola, and in whom it was said the vaccinations had been successful. Confident that they were entertaining erroneous impressions, we took considerable pains to dispel the error. Two of the children referred to were dead and buried, and whom I did not see. One was then in *articulo-mortis*. There was no vaccine cicatrix upon either of the children then living. The people were very illiterate and supposed the vaccination had taken because the children had an eruption subsequently upon their persons. The occurrence of small-pox in these cases had deterred others from protecting their children by vaccinations, laboring under the impression that it was of no utility. The operation was performed by one with whom we would refuse association, and who in my opinion was incapable of discrimi-



nating between good and bad vaccination. I also attended, last autumn, three German children suffering with small-pox, on South Wells street, between Harrison and Polk. These children had been vaccinated a few months previously, by an ignorant German woman. There was no evidence that the vaccination had been successful. There were no vaccine cicatrices. There was an abundance of negative testimony. She asserted very positively that those three children, one of whom succumbed from the small-pox, were as well vaccinated as any of the three hundred that she had done during the year. Many of you remember the quack Doctor of this city, who a few years ago purchased some matter at one of our stores, and who in his ignorance made use of the envelope of the matter, instead of the matter itself. It is needless to say that his cases were still susceptible to small-pox. These circumstances might be multiplied, but they are sufficient to demonstrate the necessity of our municipal government coming to the aid of the people and appointing public vaccinators, selecting capable men, and prohibiting the performance of the operation by the mere pretender. I believe, in most of the Atlantic cities, that there are physicians appointed to attend to the vaccination of the poor. If eternal vigilance is the price of liberty, so is eternal vigilance the price of exemption from small-pox. We know that we are not deriving the benefit from vaccination that we should. The forceps in obstetrics, Peruvian bark in malarial fevers, anæsthetics in surgery, were most valuable discoveries, but combine the benefits of all, and they do not equal that which has resulted from vaccination. We further believe that even among those of us who claim to be educated, and in possession of all the requisite information, can be found many who are not performing the operation in a manner calculated to give our patients the greatest amount of preventive security.

We do not wish to extend this report, but we feel that we cannot close it until we incorporate in it our objections to the common method adopted by the American physician in vaccinating. The majority of us trust to the introduction of matter in a single place, producing one cicatrix. If it is successful,

we concede its efficiency for a limited period of time. Some will be protected for life. But we are well satisfied, from many observations, that the protective power of vaccinations is, as a rule, greatly extended; that it secures a much larger number for life-time; and, if subsequently attacked with small-pox, much less likely to die, if there have been at the original vaccination three, four or more insertions of the matter in different parts of the body. Perhaps the same security could be purchased by re-vaccinations, but we all know the proneness of people to neglect them; hence we think it our duty to give them, while under our care, the greatest security of which vaccination is capable. The statistical tables, that have been recently published in London, give us additional assurance that we are correct. I quote from Mr. Marson's very valuable observation. He says, "that of the whole number of individuals attacked with small-pox, and previously vaccinated, seven per cent. die; of the badly-vaccinated, fifteen per cent. die; but in well-vaccinated persons—understanding by the term "well vaccinated" those having four or more cicatrices—the mortality is less than *one per cent.* He finally states, in reference to the statistics, "Test the question in which way soever you will, the result is in favor of producing four vesicles, at least, at vaccination.

In the public institutions of London, there are annually vaccinated about 20,000 individuals, and the class of persons all will admit, if subsequently attacked with small-pox, would go to the Hospital. But we are told that only about nine cases per annum of those publicly vaccinated, are admitted as small-pox patients, and that there has been but one death out of 36,000 of such patients. We believe that all the public vaccinators in London introduce the matter in several places. Prof. Hewitt, of London, says, "The power of vaccination to prevent those attacked with small-pox, from dying of the disease, is thus in direct ratio to the goodness and efficiency of vaccination." He urges four or more insertions.

We recommend an immediate abandonment of the common mode of vaccinating, and that hereafter we shall trust to no less

than four insertions at a vaccination. There are many other points to which we would like to allude, such as the selection and preservation of the material, but our report is already much too lengthy.

We ardently hope that our recommendations to the Society, that it exercise its influence to obtain the enactment of laws for compulsory vaccination, will be carefully considered. In conclusion, I desire to say that I do not know that this report embodies the views of the other members of the Committee. I am responsible for all its contents.

All of which is most respectfully submitted.

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ARTICLE XX.

LIGATION OF COMMON CAROTID OF RIGHT SIDE  
AND EXTERNAL CAROTID OF LEFT SIDE.

Reported by F. W. LYTLE, Surgeon, 36th Ill.

Daniel Cox, æt. 28. Priv. Co. F, 15th Ind., wounded at the battle of Mission Ridge, Nov. 25th, 1863. Ball entered anterior to angle of lower maxilla on left side, fracturing the bone, making a ragged opening  $1\frac{1}{4}$  inches long, passing downward under the tongue, cutting the floor of the mouth, coming out on the opposite side, a little below the cornua of the hyoid bone.

On the evening of Nov. 29th, we were called by Assistant-Surgeon Hatch, 36th Ill., to see this man, as he was bleeding profusely from wounds, and we had about one square to go to reach the building in which he was. On our arrival, found him bleeding from right side, the blood rushing from his mouth and wound in right side in a continuous stream of bright arterial blood supposed to be from a lingual artery. When we saw him, he must have lost one half gallon or nearly of blood, the bleeding having continued for several minutes, without any attempt to arrest it. The patient was placed in the semi-recumbent posture, and it was decided at once to ligate the

common carotid of right side. It was utterly impossible for him to lie down; as it was, the blood flowed into his mouth with such rapidity as almost to produce strangulation.

Surgeon A. McMahon, 64th Ohio, was the operator, and from his book the following notes are taken:—

The administration of chloroform could not be entertained; and, with the assistance of Surgeon Lytle, 36th Ill., an incision was made from exit of ball down the neck, on inside of sternomastoid, two and a-half inches, dividing the superficial structures and deep fascia; working with handle of scalpel, succeeded in exposing the sheath with descendens noni nerve, opened the sheath; passed the aneurismal needle, armed with ligature from without, inwards, and secured the vessel. As soon as the ligature was brought home, all hemorrhage ceased.

Had we seen the patient sooner, the proper course to have pursued would have been to ligate the lingual or external carotid, but it was a question whether it would be possible to find the former at this point; and, in finding the latter, so much time would have been consumed that it would have been unnecessary to have applied the ligature. The patient would have bled to death.

Under the circumstances, ligation could only be performed at the most available point—where it would soonest arrest the hemorrhage and afford the greatest probability of saving the man's life, even at the risk of violating one of the established rules of surgery, viz., "In wounds of its deep-seated branches, ligate the external carotid." In dividing the tissues, not a single arterial or venous branch was cut, which would have rendered the operation very simple, were it not for the continued flow of blood through the wound, completely obscuring the parts; but this was remedied to a considerable extent by the valuable assistance rendered by Surgeon Lytle, in the judicious use of the sponge. The operation, to be successful, was necessarily short. The pressure applied to carotid had very little effect on the hemorrhage, as the difficulty of breathing was very great, at best, without compressing the parts about the trachea.

In tightening the ligature, I watched the patient's face to see if any effect was produced, but none was visible, except an expression of relief from the pain incidental to the operation.

During the operation, an assistant had to introduce his finger into the man's mouth to free it from the clots which interfered with respiration.

This, upon the whole, has been the most frightful case that it has been my province to witness. The blanched appearance of the face, the anxious expression of his eyes, the almost absence of pulsation at wrist, the stream of blood arching from wound as if driven by a force-pump, his shirt and bedclothes completely covered with blood,—all rendered it a sight to appal the strongest nerve. Whisky and water were freely administered during the night—with beef-tea. He rallied well, considering the vast quantity of blood he lost. Pulse small and rapid; complained of great weakness. We were fearful hemorrhage might occur from opposite side, and he was closely watched during the night.

*Nov. 30th—Morning.*—No further hemorrhage during the night. Rested tolerably well. Pulse still rapid and weak. Very much prostrated. Stimulants continued during the day. Took quite a large quantity of beef-tea, of which he was very fond.

*Evening.*—No hemorrhage. More cheerful. Has taken a good deal of nourishment. Pulse has more volume and about 100. General appearance improved.

*Dec. 1st.*—Slight hemorrhage from wound on left side, which was controlled by per sulp. ferri. *Evening.*—No return of hemorrhage.

*Dec. 2nd.*—Hemorrhage occurred again from left side this morning; appeared to come out of lower maxilla, between the ends of fractured bone, as if coming from inferior dental artery. Plugs of lint, saturated with per sulp. ferri, were inserted with temporary relief from hemorrhage.

*Evening.*—Hemorrhage again occurred from wound, the patient losing scarcely any blood during this or previous hemorrhages from this side, as he was continually under the

supervision of a medical officer. This was again controlled with the iron. Finally, it was resolved that the only course to pursue, in the event of a recurrence of hemorrhage during the night, was to ligate the external carotid of left side.

About 12 o'clock, M., bleeding again occurred with considerable force, when Surgeon Herman E. Hasse, 24th Wis. Vol. (who had charge of the ward, but was not present during the previous operation), performed the operation of ligating the external carotid of left side, when the hemorrhage entirely ceased.

*Dec. 4th.*—Patient very weak. Pulse 100, small and weak. Appetite not very good. Can't take any solid food. Lives on fluids, beef-tea, farina, coffee, tea, thin gruel, whisky toddy. Milk-punch he cannot bear.

*Dec. 6th.*—General condition somewhat improved. More cheerful. Appetite better. Inclined to drowsiness. Pulsation can be felt over supra-orbital ridge, and outset of orbit on left side. No pulsation on right; face blanched.

*Dec. 9th.*—Doing well. Pulsation strong and full in temporal artery of left side; none on right. Pulse about 90, tolerably strong. Good appetite. Face lost its blanched appearance. Expressed himself doing very well.

*Dec. 11th.*—Patient improving rapidly. Pulse 86, with considerable volume. Appetite good; still takes a large quantity of beef-soup daily; thinks he will soon be able to go home. The ligature, from external carotid, separated yesterday; that from primitive, to-day. That condition of drowsiness has entirely left him. Wounds in neck granulating kindly, discharging healthy pus; no pulsation in temporal of right side.

*Dec. 16th.*—Face rather blanched; appetite not very good; complains of soreness in neck. Pulse full but somewhat gaseous. No return of drowsiness. Stimulants, with generous diet, continued.

*Dec. 20th.*—General condition improved. Pulse about 90, pretty full. Fluids pass from wound on left side, also from wound on right side. Lively and quite cheerful; piece of lower jaw rather loose; no evidence of union.



*Dec. 24th.*—Hemorrhage from small vessel—being quite superficial, controlled by iron.

From this time till the 20th January, 1864, when he was furloughed, he was carefully nourished, as before, with the addition of milk that we were enabled to procure for him. The wounds had healed, with good union of the fractured maxilla, and he was able to masticate soft food.

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ARTICLE XXI.

DIPHTHERIA.

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By JOHN D. JENNINGS, M.D., of Livingston, Ill.

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This is a disease of late origin; or, at least, we do not have any account of it as a distinct disease, prior to 1771. Dr. BARD, of New York, writing in that year, describes a false membrane, similar to that found in croup. In his description, he discards the notion of ulceration or gangrene, which was spoken of by previous authors on the subject of sore throat. Believing these ulcerations, when they do occur, to be complicated with other disease, or that they were mistaken, it being nothing but white exudation of coagulable lymph. We hear nothing more said about it until the year 1826, when BRETENEAU wrote a treatise on Diphtherite, in which he says it is not attended with ulceration or gangrene, but is closely identified in every respect with croup. Since his time, the disease has been described by many French writers.

This disease appeared in France, and prevailed as an epidemic in 1855-6, and 7, during which years a great number died. The recoveries were attended with great debility.

I now come to the epidemic that is described in this country during the last two years. It first attracted general attention in England, of late years, in the autumn of 1857 and summer of 1858—during which time it visited many towns; and, since then, has prevailed in very many parts. In this country there

has been a very general prevalence of the disease, during the last two years, prevailing as an epidemic; and, in many localities, it has been very fatal. It is peculiar in its mode of attack, differing in almost every case but having, in the main, well marked characteristics that will distinguish it from other diseases, commencing usually with uneasiness in the fauces and pain on swallowing; gastric irritation, which frequently produces vomiting, disturbance of hepatic functions, and a disturbance of the circulation. Sometimes the first symptoms are hoarseness, with altered tone of voice, not much swelling, but immediately an effusion of plastic lymph upon the mucous coat of the larynx and fauces, which becomes organized, spreading to the air passages, developing low fever, with a weak and quick pulse, hurried breathing, ending in death by asphyxia, the same as in pseudo-membranous croup, the majority of cases having a more insidious attack, with a more favorable termination. The first that attracts the patient's attention is pain on deglutition. On examining the throat, you find slight congestion, with considerable redness; here it may terminate, by acrid secretion relieving the congestion; but generally one or both tonsils become very much inflamed in a short time, sometimes with swelling of the parotid cervical and sub-maxillary glands; swallowing now becomes very painful; the tonsils and fauces have the appearance of indentation, looking like pits made by the kernels of wheat, showing that the mucous coat has become thickened in patches, which, with the effused lymph, gives it the appearance of ragged ulcers or gangrenous sloughs. This exudation is at first tough, elastic, white, or whitish-yellow shreds of membranes; but, as the disease progresses or becomes more malignant, it changes its color and becomes darker, with effusion of sanguino-purulent matter and foetid breath, with the tonsils and fauces of a dark ash hue. This exudation, which is muco-sanguino fibrinous, spreads in the air passages of the head, giving a very offensive odor and increasing the danger of the patient, making convalescence very slow. Occasionally we have fever from the first symptoms of the disease, but not usually until the local inflammation of the throat has developed

itself. The fever is of a low and malignant form; it may be æsthenic in some, and is at the commencement, but does not remain so long, but soon assumes the æsthenic or typhoid character.

The blood is changed in its normal proportions to its relative constituents, having less fibrin and a tendency to disorganization; hence the frequent occurrence of epistaxis and sanguineous effusion. The nervous system is very deeply implicated, with general prostration of the whole system, which is the greatest danger of the disease. The stomach is often disturbed in the commencement, inducing emesis. Constipation of the bowels generally occurs, except when they are disturbed by the acrid secretions of the throat, which produces diarrhœa. During the inflammatory process in the throat, there is hypersecretion of the mucous coat, commingling with the lymph effused, thereby relieving the loaded vessels and preventing ulceration. The secretions are acrid in their character, producing excoriations upon any surface they come in contact with; the urine is acrid, scanty, and in the latter stages frequently entirely suppressed, followed by anasarca, and requires to be strictly attended to throughout the whole treatment of the disease. This is no doubt a blood disease, which develops its virulent poison upon the mucous coat of the throat and air passages, producing, in those predisposed, a pseudo-membraneous exudation; in others, inflammatory swellings of the tonsils and glands about the neck, depressing the vital as well as the nervous system. The virulence of the poison is such that it has a tendency to lessen the plasticity of the blood, by which its nutrition is destroyed, which is seen by not coagulating, becoming less in fibrin and deficient in red corpuscles, producing malignant æsthenic inflammations, depressing the whole system, causing the muscles to lose their tonicity, becoming totally and less cohesive, which may be accounted for in part by the poison inducing the disease, and in part by difficult respiration, thereby not relieving the blood of the waste material of the organized system by arterialization, which remains as poison; the febrile disturbance is generally slight; pain is not in proportion to

other symptoms, sometimes quite absent; the voice dull and nasal, moderate thirst, and loss of appetite; it does not especially attack the puny and ill-fed, but is generally confined to those under 18 or 20 years of age. The appearance of the tonsils and fauces accords with the description given; bowels constipated; nervous system prostrated toward the close of the disease; secretions generally acrid; epistaxis with the blood not coagulable, but remaining watery, and in fact the solids and fluids in a septic condition. In all the malignant cases, the sweat and urine were decidedly acid; and, in fatal cases, the urine was entirely suppressed; in those dying from suffocation, by the false membrane, there was little or no swelling, not much fever, it being sympathetic or secondary. Dr. CLARK thinks it is contagious. During an epidemic, one thing I observed in the cases that I saw of that epidemic, and that was in nearly all cases of a malignant character, which lingered, or there was ulceration and gangrene, with sloughing of the fauces and other parts of the throat, and many patients were mortified before they died. Any external wound or abrasion on any surface was immediately followed by gangrene. The treatment will depend on our knowledge of the pathology of the disease. To counteract and eliminate the poison of the blood sustaining the patient, excite secretion and equalize the circulation are the main indications. In mild cases, little general treatment is required; the patient may take a dose of magnesia or some other saline cathartic, and use alum gargle. In somewhat severer cases, repeat the cathartic with ipecac and use a mixture of chlorate of potassa with lemon syrup, and, in addition to alum, use mur. tinct. ferri as a gargle; it has been recommended to use glycerine in false membranes as a solvent, which is good; but I think the chlorate of potash is better. You are debarred from blood-letting and tracheotomy on account of the nature of the disease producing anemia in one case and gangrene in the other. When you have a high grade of inflammation, a full, strong pulse, with high fever, some would recommend bleeding; but it is found that venesection does not exercise the same controlling influence on inflam-

mations of the mucous coat as other organs, and especially in this disease it does not relieve the tendency to plastic effusion; and again this disease early assumes the malignant type by a depraved state of the blood, which is shown by the dark hue and fœtid odor of the exudation; therefore it is better not to bleed and deplete too much. At first, you may give an active cathartic, and that one of a character that will stimulate the secretions, and at the same time not depress the vital powers. Calomel and ipecac, combined with carbonate of ammonia and soda, followed with Rochelle salts, if necessary, or any other saline cathartic, with the free use of chlorate of potassa, sesquichloride of iron in tincture, diluted with nitrous ether. The preparation of potash I prefer, is—chlorate of potash, one ounce; syrup of lemon, four ounces; water, four ounces; sulphate of morphine, two grains. Dose, table spoonful every four or five hours, and use as a gargle the mur. tr. ferri, diluted with nitrous ether, also given two or three times a day, internally, as a tonic and a diuretic, together with soda and potash, which have a tendency to dissolve the coagulated lymph and keep the throat clean. It will be necessary to use expectorants, ipecac and opium, remembering to sustain the patient by iron spoken of, or quinine and ammonia with proper diet, without regard to inflammation; or, in other words, use constitutional treatment. You must counteract the poison in the blood by the potash, and eliminate from the system through the kidneys and pores of the skin by the above diuretics and diaphoretics. I do not think the free use of calomel in small doses beneficial, but the saline cathartics—soda, potash, and chlorates—should be freely used. For local treatment, use means to divert the blood from the inflamed parts and to equalize the circulation by sinapisms to the feet, legs, and hands or arms, external stimulants to the neck; and, as the disease advances, fomentations of hop poultices externally to the throat; use muriated tr. iron, nitrate of silver, sulphate of copper, alum, tannin or oak bark in advanced stages; apply sulphate of copper and nitrate of silver as a caustic, and, between caustics, use glycerine for its lubricating as well as its solvent powers. The lancet leeches

and blisters, in malignant cases, should not be thought of; but, in their stead, use quinine, whine whey, carbonate ammonia, and animal broths, with fresh air, good nursing, and you may expect nine out of ten cases to recover.

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ARTICLE XXII.

CASES READ BEFORE THE CHICAGO MEDICAL SOCIETY.

By HIRAM WANZER, M.D., of Chicago, Ill.

MR. PRESIDENT AND GENTLEMEN:—Permit me to present you a synopsis of a few surgical cases, with a pathological specimen:—

The first case was an injury of the leg. I was called to Capt. B., at Bridgeport, on the 12th of June last. While standing on the bow of his boat, his right leg was caught above the ankle, in a coil of running-rope, attached to a tug. It started instantly, producing a compound comminuted fracture of the tibia and fibula at the lower third. Wishing not to shoulder the entire responsibility, I despatched a messenger for Prof. E. ANDREWS and Dr. A. FISHER. After administering the anæsthetic, a large detached fragment of bone was removed from the crest of the tibia and the fracture reduced. Finding circulation in the anterior and posterior tibial arteries, conservative surgery was adopted. The soft parts were seriously mutilated. For three or four days, hopes were entertained of his recovery. Granulations began to make their appearance. On the fifth night after the accident, *sudden* untoward symptoms followed. He became delirious, tore off his dressings, brought the limb around at right angles, rupturing a large vessel, probably the posterior tibial. Before we arrived, the blood had extravasated throughout the entire tissues of the leg and nearly all the structures of the thigh. There was but little external hemorrhage. His early habits of dissipation had to do with those uninviting symptoms, and they might have been



anticipated by treatment, had we not been misled by a denial of them. He died on the morning of the seventh day, having delirium traumaticum, consequent upon the compound comminuted fracture of the tibia and fibula, and undoubtedly a too sudden withdrawal of his accustomed stimuli.

The second case was an injury of the face. I was called to Martin M., drayman, aged 45, on the 21st of July last. He had been kicked by a horse, over the left eye and face, producing a compound comminuted fracture of the left malar and superior maxillary bones. The bones were so displaced, inverted at different angles in the wound, and detached from their connexions, that reposition was impossible, rendering necessary the extraction of the entire malar bone and that portion of the superior maxillary lying external to the infra-orbital canal and a line falling perpendicularly from it—thus carrying off the outer lower third of the anterior third of the orbital cavity, exposing a triangular opening into the antrum of Highmore, measuring nearly an inch in its diameter. For several days the structures about the eye were swollen; the lids discoloured and œdematus; the wound nearly healed by the first intention. The operation was nearly bloodless. I performed it without chloroform.

Seven weeks from the injury, he received a fall, fracturing the right clavicle at its outer third. I was again summoned; I reduced it in the usual way, by a wedge-shaped cushion in the axilla, approximating the elbow to the side by a figure-of-eight bandage.

He made a rapid recovery from both these accidents, with slight deformities. There is a small depression in the face at the cicatrix, and a protuberance upon the clavicle at the seat of fracture, showing there was not perfect coaptation of the fractured bones. There are two slight pathological conditions following both those injuries, which, however, do not interfere with his accustomed pursuits. First; he suffers, by over-exertion, exhaustion and weakness of the muscles of the arm; also, imperfect vision in the injured eye. The amaurotic symptoms have accompanied him since the accident. Nine months after,

Dr. E. L. HOLMES made an ophthalmoscopic investigation. This is his own language:—"By simple inspection, I find nothing abnormal in the eye except a marked dilatation and slight irregularity of the pupil. The patient can read, with some difficulty, the large letters of title pages, at the distance of eight inches, and can see the outlines of buildings across the street. The following ophthalmoscopic appearances are discovered:—There are two small irregular dark flocculi floating in the vitreous humor. With this exception, the refracting media are transparent. The papilla of the optic nerve is ill-defined, being partially concealed by a yellow-colored deposit, which extends in irregular points beyond its periphery. The vessels of the retina are somewhat atrophied and covered in places with the yellow deposit just mentioned, which exists in patches over the whole concave surface of the eye. A very few of the vessels of the choroid can be seen at the upper and outer part of the eye. No pigment deposits are anywhere present. This absence of pigment is quite unusual in my experience in cases like this. The general appearance of the retina may be compared in some respects to that represented in Jaeger's ophthalmoscopic plates, No. VIII. The amblyopia is undoubtedly a result of inflammation of the retina and choroid, and possibly of the optic nerve, produced by the injury."

The fourth and last case I will present to the Society. I was called, too, early in February last. The boy, aged five years, had received an extensive injury from a circle of iron, weighing 280 lbs., falling upon the lower third of the leg. Notwithstanding the pulpified condition of the soft parts, as well as the fracture of the tibia and fibula, an attempt was made to save the limb. The foot retained nearly its normal temperature for thirty-six hours. From this period, gangrene occurred in all the superficial structures below the injury. With the assistance of Prof. E. ANDREWS, amputation was performed at the middle of the leg. The little patient stood the operation well, and reacted finely. In about one week after, a terrible neuralgia occurred in the stump. The symptoms were somewhat similar to those observed in traumatic tetanus; the

paroxysms were not continuous; the liberal use of anodynes had but little effect; opiates seemed rather to aggravate the pain, which gradually disappeared under the use of valerian and hyosciamus. The ligatures were allowed to remain six weeks after the amputation. In accordance with the request of the Chicago Medical Society, I made a dissection of the amputated limb, assisted by Dr. JOHN BARTLETT. The structures were so extensively injured that it was impossible to make a perfect dissection. The cutaneous and cellular tissues were pulpified. The muscular structures were extensively lacerated. The muscular portions of the peroneus brevis, the tibialis posticus, and flexor longus policis, were cut. The tendons of the gastrocnemius plantaris and peroneus longus were uninjured; the anterior and posterior tibial arteries were destroyed, with their accompanying veins; the external saphenus was torn across; the internal saphenus was uninjured; the anterior tibial nerve, with the external division of the musculo-cutaneous, were destroyed; the posterior tibial nerve, with the internal branch of the musculo-cutaneous, were entire. The peroneal vessels were lost in the confusion of the parts. There was compound comminuted fracture of the tibia and fibula. That the foot should retain its temperature for so many hours after these injuries, is remarkable.

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### Army Correspondence.

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SMALL-POX HOSPITAL, U.S.A., MEMPHIS,  
*April 14, 1864.*

Prof. N. S. DAVIS:

SIR:—I have been on duty in the Small-Pox Hospital, at this place, for several months past, and have noted many facts of interest in reference to the fatal and loathsome disease of small-pox.

The location of the hospitals is, every way, good; they are situated one mile east of Main street. The grounds are exten-

sive and beautifully decorated with ornamental and shade trees, and are finely adapted for a place of recreation for the convalescents. The main building is a large brick, two stories high and a basement—is 60 ft. by 36 ft. A large hall, 12 feet in width, divides the building lengthwise, with a cross hall through the middle. Arranged on either side of the halls are rooms 12 ft. square, 10 ft. high—each ventilated and lighted by two large windows—each warmed by a “fire-place,” large and of splendid draught, carrying off much foul effluvia. Each room has five patients. The upper part of the house is arranged as the lower floor—*both* floors accommodating only 60 patients. The basement is used as a kitchen, convalescent dining-room, and for store-rooms. The remainder of our patients, over 300, are in common hospital tents—6 to the tent—which is crowding far too closely; yet it has been impossible to do better, as the disease has increased so rapidly as to prevent any better accommodations being provided. Insufficiency of room and proper ventilation, as well as *extremes* of temperature, have been obstacles to the satisfactory treatment of our cases. As pulmonary diseases have often supervened, erysipelas and pyæmia frequently attacked the patient, about the time convalescence was fairly beginning—many times, resulting *fatally*, because of the want of *suitable accommodations*. You will see, by the accompanying table, that but a small proportion of the patients have even been vaccinated; therefore we have had a very large number of extremely bad cases—many of the confluent, malignant variety, proving fatal—often within 72 hours after we received them in hospital.

You will not fail to notice the small number of *varioleid* cases. We have had several hundred *negro* soldiers as *patients*, and, as a usual thing, *they* never have been vaccinated, and have small-pox in its most *aggravated* form, with a large proportion of deaths—being very much greater than among whites, everything being equal.

Total number of patients admitted into “Small-Pox Military Hospital,” Memphis, Tenn., from 1st January, 1863, to 1st April, 1864 . . . . . 1,498

1864.]

## Selections.

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No. admitted with small-pox . . . . .	1,209
" " " varioloid . . . . .	289
" of deaths in that time . . . . .	879

*First Quarterly Report, for 1864, of cases received into Small-Pox Hospital, U.S.A., Memphis, Tenn.*

MONTHS.	Whole No. of cases admitted.	Vaccinated once or more, successfully.	Never vaccinated.	Varioloid.	Small-pox.	Deaths.
January .....	132	41	91	35	97	21
February .....	196	62	134	61	135	53
March.....	295	102	193	66	229	98
Whole No. Received..	623	205	418	162	461	172

Our treatment has been on general principles, with an external application to face to prevent pitting. The local remedy most beneficial has with us been—R<sub>x</sub>, Iodine and Glycerine, equal parts, applied freely every two hours, for 24 hours after the eruption appears, which produces desquamation about a week earlier than if left to nature, and leaves the surface smooth and natural.

ALIQUEIE C. MATCHETTE, U.S.A.

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**Selections.**

ON THE CALABAR BEAN, BY CHRISTISON;

TH. R. FRASER; D. ARG. ROBERTSON; W. BOWMAN; J. W. OGLE; A. V. GRAEFE; E. HART; J. SOELBERG WELLS; J. HULKE; HARLEY. (From "Schmidt's Jahrbücher," Oct. 1863.)

Since a long while, the want of a remedy was felt, which acted antagonistically to atropine and the other mydriatics for

producing a prompt contraction of the pupil. After various substances, particularly opium and ergotine, had proved ineffective, this remedy has been found in the Calabar Bean.

The drug was first mentioned by ROBERT CHRISTISON, in Edinburgh, in a paper "On the properties of the ordeal bean of old Calabar, West-Africa," published in 1855; but only its action, when taken internally, had then been examined. Th. R. Fraser, Assistant to the Professor of Materia Medica in Edinburgh, drew attention to the myotic qualities of the remedy. We copy from Fraser's remarks\* the following:—

The bean comes from a *runner*, climbing on the bushes and trees, of the natural order—Leguminosæ; sub-order—Papilionaceæ; tribe—Euphasoleæ, growing in West-Africa, west of the river Niger (between 4° and 8° N. lat., and 6° and 12° E. long.), on the Calvary River. This region is inhabited by negro tribes. These call the bean Esere, and use it as an ordeal for criminals, in order to prove their innocence or guilt. The population of Calabar is estimated at 100,000, and of these upwards of 120 are reckoned annually to be thus sacrificed.

From the careful description of the plant (*Physostigma venenosum*, Balfour) I abstain, and merely mention that the root is spreading with numerous fibrils often having small succulent tubers attached. Inflorescence, axillary; on pendulous multifloral racemes; rachis of each raceme zig-zag and knotty. Calyx, campanulate, four cleft at apex, the upper division being notched and its segments ciliated. Corolla, papilionaceous; veined with a pale pink, having a purplish tinge, and curved in a crescentic manner. Stamens, ten, diadelphous. Pistil, more than one. Stigma, blunt, covered by a remarkable ventricular sac or hood, which extends along the upper part of the convexity of the style, having a resemblance to an "admiral's hat set in a jaunty manner." Legume, dark brown and straight, when mature, about seven inches in length, elliptico-oblong, with an apicular-curved point, and with outer and inner integument easily separable. Seeds two or three, separated from each other by a woolly substance.†

These so-called beans are on an average a little longer than one inch. They are irregular reniform, having the appearance of a somewhat flattened fusiform body bent on one of its edges.

As obtained from Calabar, the beans have a gray color, and

\* *Edinburgh Medical Journal*, VIII., IX., and X., 1863, a Monograph entitled "The Calabar Bean," Edinburgh, 1863.

† See Professor Balfour's paper in the Transactions of the Royal Society of Edinburgh, vol. XXII. Part II.



are incrustated with earthy matter. This is readily removed by washing, and a somewhat shining integument is exposed of various shades of brown, ranging from a light coffee to an almost perfect black.

The description of the kernel and spermoderm, consisting of three layers, I may dispense with.

While the other parts of the plant are indifferent, as it seems, to the animal organism, the beans have strongly poisonous qualities. According to the missionaries, those who have eaten them, first feel a violent thirst. Afterwards, the poisoned individual cannot swallow; mucus flows from the mouth; convulsions, particularly cramps in the muscles of the back, come on, etc. During all this, the patient is conscious of everything, and even the language remains up to shortly before death, which may ensue within half an hour. Sometimes vomiting occurs, after which the heat diminishes; and, except headache, all other symptoms disappear. Small doses (up to 12 grains) with which Christison made his experiments, soon caused an increasing pain in the epigastrium with retching, a sentiment of dyspnoea, cramps in the muscles of the breast, vertigo and weakness in the limbs, strong secretion of saliva, and irregular, slow motion of the heart, so that in one case the pulse made only 20 beats.

In rabbits, the alcoholic solution of the kernel of the bean, injected subcutaneously into the cellular tissue, produced, after five minutes, a copious discharge of urine. The fæces were eliminated normally in the beginning, but became more and more thin and watery; the hind legs were paralyzed, and the animal did not move when lifted up by the ears. After 20 minutes the pupils contracted, but not to the highest degree; they did also not cease to act somewhat on light. After 30 minutes, the animal would lie stretched out and respiration became noisy. During these experiments, the paralysis ceased after 2 to 3 hours, and only the diarrhoea and the strong secretion of urine remained for 12 hours.

Locally brought in contact with the muscles, the alcoholic extract produced loss of contractility; the intestines, painted over with a solution, ceased to move; in the cellular tissue it produced redness and inflammation, but not on the mucous membranes. Worms, which were also painted with the solution, first moved as if they had cramps and then died paralyzed; a partial paralysis could be produced by only painting them at isolated points. Internally the Calabar Bean (the extract prepared from the kernel) produced in the rabbit first slight

shakings of the posterior extremities, then weakness thereof and evacuations of fæces and urine, contraction of the pupils, discharge of mucus from the mouth, and irregular respiration. Reflex movements cannot be produced. The animal finally seems dead, and the pupils dilate instantaneously. When it was opened, immediately the muscles of the extremities and the diaphragm were found to be yet contractable, and the heart also beat for 1 to 1½ hours longer; after this the left auricle ceased to move, then the ventricles, and finally the right auricle. The veins of the thorax were strongly injected; the lungs hyperæmic; in the stomach and intestines there was no change; liver and kidneys contained much blood; fauces and larynx were covered with mucus; there was much serum in the abdominal cavity; brain and spinal cord were unaltered, the membranes of the former hyperæmic.

Strong doses, given at once, caused instantaneous paralysis of the hind-legs, with slight cramps, flowing of mucus from the *nares*, strong secretion of tears, contraction of the pupils, and death after a few convulsive respirations. The pupils dilated immediately after death. In such cases there was no contractility of the muscles to be demonstrated in the cadaver; liver and lungs seemed normal; the intestines and bladder were filled; the heart in diastole, only contractable for a few moments by irritation; the peristaltic movements of the intestine were barely noticeable. In order to examine the local action of the remedy on the eye, Robertson\* prepared an extract from the pulverized bean, which he dissolved in alcohol in three different concentrations. The weakest solution was produced by extracting 30 grains of the bean by alcohol, evaporating to desiccation and dissolving the rest in 1 dram of water. Thus a dirty light red-brown fluid was obtained. By further extracting and evaporating, a four times and an eight times stronger extract were obtained. After R. had examined his eyes and found that his pupils were 2 lines in diameter each, and that with each eye Jäger's No. I. was read at 5 inches distance, he put a drop of the weakest solution in his left eye, which did not produce any more irritation than a drop of water. After 10 minutes, objects at a distance of 1 foot became indistinct: at the same time all objects seemed larger and nearer. There existed also a sensation of tension in the eye, as if very minute objects had been assiduously looked at. Both pupils were yet equal in size. After 20 minutes, the left pupil had only a diameter of 1 line; objects further distant than 9 inches ap-

\* *Edinburgh Medical Journal*, VIII., p. 815, March, 1863.

peared dim; every thing looked at seemed larger and nearer. The right eye was normal. After 30 minutes, the left pupil was only  $\frac{3}{4}$ , the right only  $2\frac{1}{2}$  lines in diameter. The far-point of the left eye, 8 inches. After 50 minutes, the left pupil was  $\frac{1}{2}$  and the right one 2 lines; a sensation of pressure and fatigue became manifest, when the subject of the experiment attempted to read; objects at 10 yards' distance were recognized with difficulty. After 6 hours, the left pupil was 1 line, the right one  $1\frac{1}{2}$  lines; both reacted on light. After 12 hours, the left pupil was  $1\frac{1}{2}$ , the right one  $2\frac{1}{2}$  lines in diameter. The following morning both pupils showed yet a slight difference, and the left eye was somewhat weak.

In a second experiment it was tried to find out the action of atropine when introduced into an eye, the pupil of which is at its maximum of contraction in consequence of the application of the extract of Calabar Bean. After contraction had been brought about in 25 minutes (there still existed some capacity of reaction), atropine produced dilatation to the normal size in about 2 to 3 hours. At the same time it was found that atropine in a solution of 2 grains to an ounce of water acts more strongly than the weakest solution of the extract of Calabar Bean, as the former in this experiment again dilated the pupil without a renewed application, after the pupil had been contracted anew by a second instillation of the solution of Calabar Bean. In a third experiment it was recognized that an already atropinized pupil begins to contract 10 minutes already after the application of the strongest solution of Calabar Bean, but that the action of the latter was not strong enough not to allow the action of the atropine again to appear; and that, on the contrary, a constant contraction of the pupil took place only after a second instillation of the extract of Calabar Bean had been made.

BOWMAN has also experimented on his own eye, as stated by WELLS.\* After 5 minutes, he felt a strong tension in the neighborhood of the ciliary body, as if something crept about there.† After 10 minutes this sensation had yet increased, and he felt also some lancinating pain. After 15 minutes, the near-point was, at the left side,  $6\frac{3}{4}$  inches; while, in the right eye, to which nothing had been applied, it was removed to a distance of 15 inches. The far-point seemed equally distant in

\* *Med. Times and Gazette*, May 16, 1863.

† Coetaneously with this sensation of creeping, I have frequently seen in patients twitching movements of single fibres of the musculus orbicularis palpebrarum.—[Ed.]

both eyes. After 20 minutes, No. XVII. Jäger was seen at 15 feet, but the letters oscillated: they disappeared and returned alternately. The left pupil was then contracted to the size of the head of a pin, remained in this state for 18 hours; and, in the course of three days, again became normal. With this dilatation the reaction of the pupil on light became noticeable on both eyes. 25 minutes after the application, there existed astigmatism: the vertical staffs of a window appeared perfectly distinct at a distance of from 6 to 10 feet, while the horizontal ones seemed dim and angular. This was remedied by a concave cylindrical glass of 14 inches focus. With a cylindrical glass of 50 inches focus, distant objects appeared palpably smaller. This astigmatic state was yet found 18 hours after the application.

OGLE\* has also made numerous experiments, which constantly showed the prompt contraction of the pupil after the application of the remedy. The action of the drug on the apparatus of accommodation, OGLE has not considered; and experiments in that direction are only then valuable if they are made upon sufficiently intelligent persons, or by physicians on themselves.

DE GRAEFE† has tested the new myotic on 9 healthy persons. The average time for the setting in of contraction was 14 minutes with the weak, 12 minutes with the strong solution; the duration of contraction with the former 2, with the latter 3 days; the maximum of contraction lasted from 6 to 18 hours. The altered state of refraction, *i. e.* the cramp of the muscle of accommodation and the approach of the near-point, lasted much less in GRAEFE's experiments: it reached its height in 10 minutes, and remained there but from 10 to 20 minutes. The apparent increase in the size of objects and change of illumination were also observed; the acuteness of vision was reduced from 1 to  $\frac{3}{4}$ . Ophthalmoscopically there appeared no change of circulation. In a patient who had no iris, but good vision, the action on the ciliary muscle was also manifest. Experiments on birds showed the action of the drug on the pupil of these animals to be very brief; on amphibia and fishes the remedy remained without influence. DE GRAEFE also satisfied himself that atropine is a much more powerful irritant in an opposite sense than the Calabar Bean. The latter is not capable of contracting the pupil after it has just been dilated by atropine; the action of the latter also again appeared, when in an atropinized eye the Calabar Bean had for a short time

\* *British Med. Journal*, June 13, 1863.

† *Deutsche Klinik*, 29. 1863.

produced a medium degree of contraction. When the pupil had first been contracted, atropine always acted, but somewhat slowly. The remedy acted also on the iris, when it was abnormal but not totally atrophic, *f. i.* in glaucoma and in a case of fistula of the cornea.

From all hitherto published experiments, it results that the Calabar Bean first produces a subjective sensation of tension in the ciliary body, which may be recognized also by the determination of the near-point and the range of accommodation; that it also causes contraction of the pupil; that the contraction reaches its height in the course of an hour; that the iris loses during that period its contractability; and that the dilatation to the normal size from this contracted state requires less time than the contraction of the pupil, when dilated by atropine (the latter circumstance probably depends on our incapacity up to the present time to extract entirely the active principles of the Bean). Simultaneously with the tension of the ciliary body occur the symptoms of myopia with a small range of accommodation, and of astigmatism. The remedy, therefore, acts by producing a cramp, by irritation of the ciliary branches of the oculo-motorius, in the ciliary muscle and sphincter of the pupil; it does not paralyze the dilatator pupillæ, as otherwise it could not produce complete contraction in a previously dilated pupil. It is, consequently, in so far an antagonist of atropine as the latter irritates the dilatator of the pupil.

Therapeutically the remedy will find the following applications: 1) Perhaps in retinitis, with great sensibility to light in order to moderate the admission of light. 2) In mydriasis, consecutive in some cases to debilitating diseases (Typhus, Diphtheritis, etc.) and to injuries. 3) In ulcers at the margin of the cornea, in order to avoid incarceration of the sphincter of the pupil after perforation. 4) In artificial mydriasis, in order to do away with the dazzling, which is very disagreeable to patients after having been examined by the ophthalmoscope, particularly if they have but one eye. [To these indications may be added the following: 5) In those corneal opacities with a transparent centre, which produce, when the pupil has its normal size, dazzling by diffusion of light. 6) In similar circumscribed opacities of the crystalline body, situated near the centre of the latter, and in dislocations thereof. 7) In abnormal mobility of the lens, with a tendency to fall into the anterior chamber. 8) For the discovery of simulated amaurosis, the pupil being dilated with atropine. 9) In wounds of the cornea and sclerotic, with a recent prolapsus of the pheripheric

part of the iris. 10) Perhaps in diseases of the ciliary body.]

E. HART\* has first made experiments in London with the Calabar Bean in paralytic mydriasis, and states that his experience entirely coincides with the facts already communicated by us. He considers it appropriate to instillate a fresh drop every 4 days; he himself used a solution of the extract of such a concentration that one drop contained the extractive matter of 3 grains of the crude drug. He furthermore says that the alcoholic extract is soluble in glycerine, and that this solution is more durable than the watery one, which already, after a few days, becomes decomposed.

WELLS had an opportunity to use the remedy in a woman of 26, who had rheumatic pain in the right half of the face; and, since three months, mydriasis on the same side, while the left eye was normal. We merely mention, from his very carefully communicated observations, that the affected pupil had a diameter of 4 lines and was immovable, and that the eye had a near-point of 18 inches for XVI. of Jäger's type. At the height of contraction, No. I. was seen from 10 to 12 inches, and a little afterwards from 8 to 10½ inches; the normal range of accommodation was therefore not re-established. When on the other (sound) eye the pupil was artificially contracted, it was determined that its near-point could be brought to 3 and its far-point to 5½ inches. From this it appears that the tension of the muscle of accommodation in the sound eye is artificially increased to a greater extent than in the eye affected with paresis of that muscle, as was to be expected. A cure of the disease in the patient was not effected, and it was necessary to apply every 3 or 4 days a fresh drop of extract of Calabar Bean.

HULKE has made experiments, as stated by HARLEY,† on three patients. In the one, who suffered from paralysis of both oculo-motor nerves in consequence of syphilitic periostitis of the orbit, the pupils contracted to 1 line, and the near-point approached from 20 to 12½ inches. In another, with mydriasis of the left eye of 4 years' standing, consecutive to a traumatic periostitis of the orbit, the pupil contracted from a diameter of 3 lines to ¾ of a line, and the near-point approached from 8½ to 6 inches. In the third case, with rheumatic paralysis of the oculomotor, the near-point was approached from 10 to 5 inches, and the pupil contracted to a diameter of 1 line.

—*Amer. Jour. of Ophthalmology.*

GEISSLER.

\* *Lancet*, No. 37, May 30, 1863.

† *Med. Times and Gazette*, June 30, 1863.



## ON A NEW MODE OF APPLYING ATROPINE.

BY JULIUS HOMBERGER, M.D.

In the last number of the first volume of this Journal I have alluded to the efficacy of applications of sulphate of atropine, in substance, into the eye, in all those cases which indicate otherwise repeated instillations. The use of solutions of atropine, as well as atropine ointment, and even Streatfield's atropine paper, will, I think, henceforth be limited to the dilatation of the pupil in ophthalmoscopic examinations. I have since that time experimented with atropine on all my patients in the solid form only, and I must state that the results have been such as to justify the most enthusiastic recommendations. The dilatation of the pupil produced in eyes without disease of the iris, in cases of keratitis, wounds of the cornea, etc., etc., lasts usually from four to five days. The quantity of atropine placed into the lower palpebral sac seems to have a decided influence on the duration of dilatation of the pupil. The following is an instance of this long action: By mistake, I had put atropine in the sound eye of a patient, who applied for treatment, and when, fifteen minutes later, I found the error, the pupil was considerably dilated. I applied the atropine to the diseased eye, and, in order to neutralize the effects of atropine on the good one, I put a square of Calabar bean paper in the latter. The pupil became smaller, after about twenty minutes; but the patient returned in the evening, with a pupil as large as before. I sacrificed, during the succeeding three days, eight squares of the Calabar bean paper, which is, at the present moment, such a treasure in this country as not to be freely dealt with, and the dilatation always returned, and had only entirely disappeared when I saw the patient on the seventh day. There is no doubt that the large quantity of atropine, taken endosmotically into the humors of the eye, was the cause of this remarkably long-lasting effect; and I suppose that the rapid dilatation of the pupil, by detachment of posterior synechies, which I obtained both in cases of chronic and acute iritis, with not more than one application daily, must be attributed more to the reception of the alkaloid into humors and tissues, from where it exerted a continual action on the iris, than to the sudden effect of a high dose of the remedy. That the active principles of the Calabar bean contract the pupil momentarily, may be easily explained. It may be supposed that the endosmotic process is more active, through the cornea

than through the sclerotic, and that, therefore, the atropine contained in the aqueous humor is neutralized, and, after having received an over-balancing quantity of the active principles of Calabar bean, acts on the iris; while, after some time, the larger quantity of atropine, yet contained in the vitreous humor and the other tissues, neutralizes the Calabar bean, and again produces dilatation of the pupil. I have seen that, within two days, and with only one application of atropine daily, large adhesions of the iris were torn from the anterior capsula, sometimes leaving there intensely black spots, and effused lymph, the former of which derived their origin from the uveal surface of the iris. In one case of syphilitic iritis, two *nodi*, situated near the pupillar margin, and which had resisted the first applications of atropine, though the rest of the iris had been considerably retracted, were removed, about one line towards the periphery, on the fifth day. This is the more remarkable, as their size had not diminished during that period, and the inflammation was yet considerable.

It cannot be questioned that it is much easier to introduce a solid particle into the eye, than to introduce a square bit of paper; that the latter can sometimes not be removed without the aid of forceps; that the lids of iritic patients have, sometimes, to be kept open for a considerable time, while the paper is removed, in spite of the patient's sensitiveness to light; and that in a certain number of cases the patients complain of the slight irritation produced by the paper. While these little inconveniences do not appertain to the application of atropine in substance, which is rapidly dissolved, and felt only for a moment as a foreign body, I think, particularly, the circumstance that it is possible to conveniently saturate the tissues and humors of the eye, with the remedy, will render this method also of greater therapeutic value.

It may be set down as a fundamental point in the treatment of iritis that the dangers of this disease, for vision, consist *merely in the formation of adhesions between iris and anterior capsula*. During the acute stage of the disease, the adhesions threaten to glue the pupillary margin to the capsula. Either, if lymph is effused into the pupillary space, the eye becomes useless by closure of the pupil, after the acute symptoms have subsided, or the synechies become the points of origin of a chronic process, which very frequently leads to a number of complicating changes in the choroid, ciliary body, and lens, almost certainly fatal to vision.

The danger of the formation of synechies is, therefore, of

primary importance in the treatment of acute iritis; in fact, a case of this disease can only be considered as cured if no adhesions are left after the inflammation is gone. The first object of the oculist treating this malady must therefore be to dilate the pupil, at all hazards. To rely on the removal of adhesions by constitutional medication, and to be satisfied with a mercurial treatment, with instillations of atropine three or four or six times daily, would not be judicious, in my opinion. The application of the mydriatic *coup sur coup* is the source of considerable irritation to the eye; and, on the other hand, the resorption of the fluid, with the tears, through the lachrymal canal, exposes the patient to the danger of poisoning, to the same extent, as the application of atropine in substance.

The method of treating iritis, which I would propose, consists in the introduction of the fortieth part of a grain of atropine, in substance, into the lower conjunctival sac, which can be easily done by placing the salt, with a probe, on the everted lower lid. The patient is kept for half an hour under observation. Dryness in the throat is a usual effect of the application of the drug, which soon passes away; only if further symptoms (congestion to the head, paralysis of the m. protractor urinæ) should approach, it will be necessary to give to the patient, internally, one-sixth to one-third of a grain, or a subcutaneous injection of one-eighth to one-fourth of a grain of the sulphate of morphine. Though I have but twice been obliged to resort to these means of counteraction, I consider it necessary to have them always on hand.

It will be well to examine the patient some hours after the first application. If the pupil has enlarged considerably, one application daily will soon bring about dilatation, and no further treatment will be necessary, particularly in cases of a non-specific nature. If the enlargement is noticeable, but of little extent, or if there is no change, another application is made with the same care, and the case re-examined the following day. On the second day, those cases which do not present a marked increase of the size of the pupil, are, according to the current rules, subjected to the action of mercury, to depletion, paracentesis of the anterior chamber, or Iridectomy. Those, on the contrary, where the pupil has become larger, are treated with atropine exclusively, and only those where marked constitutional syphilis exists, submitted to a mild mercurial treatment. In this manner a number of patients, in whom it is not easy to determine whether the ocular disease be specific or not, escape the necessity of mercurial medication. I have sometimes found,

in mild cases where syphilis existed, the pupil dilated on the second day, and the inflammation diminished: so that, for experiment's sake, I cured the disease locally, before I submitted the patient to an anti-syphilitic course of treatment. The applications of atropine, in substance, may well, in my opinion, supersede all other modes of using this remedy. Their energy and permanence of effect are incontestable. They irritate the eye less than collyria, and the whole of the remedy used comes into action; their use is more convenient than even that of atropine paper; and the dangers, which also exist when collyria are applied *coup sur coup*, do not fall heavy in the balance.

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### ON A NEW MODE OF PERFORMING IRIDECTOMY.

By JULIUS HOMBERGER, M.D.

A great difficulty in performing Iridectomy, for the purpose of diminishing intra-ocular pressure, consists in the *removal of the iris to its ciliary insertion*. Another necessity, which is also not easily accomplished in many cases, is the *excision of a large piece* of the iris. If it is necessary to go far beyond the margin of the pupil with the lanceolar knife, in order to get a large corneal wound, the danger arises of injuring the lens, which is considerably pressed forward in glaucoma. Again, the cases are not rare where even experienced assistants do not cut off the iris to the edge, and thus cause a failure of the operation, or make at least its result very doubtful.

It is not my intention to criticize the different modifications which have been invented by Von Graefe, Arlt, Fræbelius, Bowman, and others, with a view to do away with these difficulties. No practical surgeon will deny, that, in spite of all modern propositions, the execution of Iridectomy is still attended by the above-named inconveniences. Therefore, though the method which I am going to describe has not yet stood the test of numerous experiments on living subjects, I do not hesitate to recommend it to the readers of this journal for trial, confiding in the easiness of its execution, and the certain results which it seems to promise.

With a cataract knife, the point of which, directed towards the centre of the globe, is pushed into the sclerotic at a distance of one line from the margin of the cornea, a linear opening is made, which, by merely pushing forward the knife, is lengthened in a radial direction, until the cut reaches three-

quarters of a line beyond the edge of the cornea. During the performance of this cut, the back of the knife does not for one moment leave its direction towards the centre of the eyeball. The knife is then gradually withdrawn, so that the aqueous humor is slowly evacuated. By this first act of the operation, the anterior chamber is opened, and the iris fissured from its ciliary insertion up to a point about half a line distant from its periphery.

The second act of the operation consists in the introduction into the wound of one branch of a fine, but strong, pair of scissors, slightly laterally curved. The point is introduced along the posterior surface of the cornea into the anterior chamber, and the cutting edge of the branch laid into the junction of iris and cornea. With one or two movements of the scissors, a wound is produced corresponding with the size of the piece of the iris which is intended to be removed. It will be necessary, in order to be able to introduce the scissors, to enter first but a little way into the wound made by the knife, and almost rectangularly to the latter, to make way for the branch of the scissors.

In the third act, a common iris-forceps is introduced into the anterior chamber, but not in a diagonal direction, as usually. With the point of the forceps the operator takes hold of that part of the iris next to the angle of the wound, and by a slight traction, in the direction of a tangent, touching the margin of the cornea in the wound, he tears the already fissured iris up to the pupilar margin, and then by continued pulling he severs it from its ciliary insertion. As soon as the iris is thus torn off up to the opposite angle of the corneal wound, the operator himself, or an assistant, removes the separate segment of the iris, with either knife or scissors.

The advantages of this method I wish to condense in the following points, and shall be happy if, by my proposition of a more convenient way of performing Iridectomy, I add a mite to the universal diffusion of this important operation.

1. The opening of the anterior chamber is made in such a way, that the instruments do not in any way come in contact with the pupillary region, and there is, therefore, no danger of wounding the lens.

2. The inner edge of the corneal wound is made with much more certainty in the junction of iris and cornea, than with either knife or lance.

3. The tearing of the iris from its insertion loses, by the previously made fissure in the iris, the danger of dialysis; while it insures, on the other hand, a peripheral pupil with more

certainty than if the iris is cut off after having been dragged out in the manner hitherto practised.

4. The cutting off of the iris may be performed even by assistants of little experience; because, if ill-executed, it does not, as in the usual methods, render it frequently impossible to resume hold of the iris.

Finally, I may be permitted to remark, that I do not consider the division of some fibres of the ciliary muscle (Hancock) of great therapeutical importance; but that I think the angular opening, which allows a part, at least, of the aqueous humor to escape for some time, is very favorable to a gradual diminution of intra-ocular pressure. The importance of a compressive bandage during the after-treatment may, by this circumstance, be considerably lessened, or even totally annulled.

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### NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, April 6, 1864.

DR. JAMES ANDERSON, PRESIDENT, IN THE CHAIR.

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#### CEREBRO-SPINAL MENINGITIS.

Dr. DETMOLD read an account without comment, of a case of cerebro-spinal meningitis, called also spotted fever, occurring under his observation, after which Dr. W. H. Draper read a portion of an interesting paper which he is preparing on the same disease. His paper is founded upon a somewhat lengthy and careful observation, principally in the neighborhood of Carbondale, Pa., where the disease has been raging to a fearful extent. As the paper is not yet completed, no analysis of it can be given at present. Dr. Skiven, of Long Branch, N. J., being present, by invitation, proceeded to address the Academy at some length, giving a minute description of the disease as it appears in his locality. The neighborhood where the disease has occurred with the greatest degree of severity is but a short distance from the sea-shore. The climate during the winter has been mild, there having been no storm from the ocean until some time in the month of March. The ground is generally dry, there being no marshes or swamps that are not covered by the tide. The spring and well water is more or less impregnated with chloride of sodium and the salts of iron. The mode of living is varied, there being no uniform system of diet, either in meats, drinks, or vegetables. The population is composed of different classes, from the poor laborer to those in easy cir-



circumstances; all seem happy and contented, and enjoy life much. From these facts there seems to be no known cause from soil, climate, or mode of living, by which we can account for the appearance of the disease. It was observed that as soon as this disease appeared all other diseases disappeared, or seemed to be swallowed up in this. During last winter, measles prevailed to an extent and degree of severity hitherto unknown. It attacked persons of all ages, from the young child to the old man of seventy. In past years this has invariably been followed by scarlatina; but this year it was not so; upon the disappearance of measles from the neighborhood, cases of cerebro-spinal meningitis began to appear. The first symptom of the disease has generally been a severe pain in the knee, sometimes in the hands, and attended by what the patient describes as "pain in the bones," extending along the direction of the limb. After a short time, or in some instances a day or two, the pain leaves the limbs and attacks the head, from which it extends to the back of the neck, and continues down as far as the lumbar region. This, like the pain in the limbs, is aggravated more by motion than pressure; indeed, every attempt at motion is attended by the most intense pain. If the patient can be seen at the commencement of this stage of the disease, he is bled freely from the arm, leeches applied to the temples and mastoid processes, cups to the back of the neck and along the spine, followed by mustard applications and the administration of a brisk cathartic. Before Dr. S. commenced this treatment, he lost a majority of his patients; but since he began to bleed early, a much greater proportion recover. Later, when stimulants seem to be indicated, he has found equal portions of capsicum and camphor in powder, to be attended with a better effect than any of the diffusible stimulants. The prejudice of the inhabitants is against autopsies, consequently the advantages for studying the pathology of the disease are limited. Dr. S., however, exhibited some specimens, consisting of a portion of the dura mater, one of the stomach, and one of the bladder; these all appeared to be in a very high state of congestion. The spots, from which the disease is sometimes called "spotted fever," Dr. S. regards as accidental, being simply spots of ecchymosis caused by rupture of some of the small vessels during the stage of reaction. It was announced that this subject would be continued at the next meeting, after which the Academy adjourned.



## Book Notices.

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LECTURES ON MEDICAL EDUCATION, OR ON THE PROPER METHOD OF STUDYING MEDICINE. By SAMUEL CHEW, M.D., Prof. of Practice and Principles of Medicine and of Clinical Medicine, in the University of Maryland. Philadelphia: LINDSAY & BLAKISTON. 1864.

This is a neat duodecimo volume of 152 pages. It embraces five lectures on the following subjects:—

*Lecture I.* Introduction—Power of Industry—Whether special Talents for Medicine are necessary—What Talents are requisite—Good Senses—Good Sense—Means for the Study of Medicine.

*Lecture II.* Reading as a Means of Study—Errors in its Use, &c., &c.

*Lecture III.* Errors in Reading Continued—Reading without Thinking—Lectures as a Help in the Study of Medicine—Their Utility, &c., &c.

*Lecture IV.* Clinical Experience—Necessity of a Hospital to every Medical School—Conversation as a Means of Acquiring Knowledge, &c., &c.

*Lecture V.* Medical Schools—Controversy Respecting them, &c., &c.

It is a pleasant readable book, containing very many useful suggestions to students; and may be read with profit by all who wish to improve their knowledge of medical science and practice. For sale by S. C. Griggs & Co., Lake street, Chicago.

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DISEASES OF THE EAR, THEIR DIAGNOSIS AND TREATMENT. A Text-Book of Aural Surgery, in the form of Academical Lectures. By Dr. ANTON VON TROELTSCH, Aural Surgeon and Lecturer in the University, in Wurzburg, Bavaria. Translated from the German and Edited by D. B. Sr. JOHN ROOSA, M.D., Assistant-Surgeon to the New York Eye Infirmary. Illustrated with Wood Engravings. From the Second and last German Edition. New York: Wm. Wood & Co., 61 Walker street. 1864.

This is a well executed volume of 254 pages, on one of the most neglected, and yet one of the most important, departments of practical medicine and surgery. It is a plain practical treatise.

tise on diseases of the Ear, in the style of lectures; sufficiently full in details without being prolix, and its practical recommendations characterized by clearness and good sense. The editor, Dr. ROOSA, has not only performed the work of translation well, but he has added many valuable paragraphs to the original text. The book is worthy of being purchased and read carefully, by every student and practitioner of medicine.

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TENTH ANNUAL REPORT OF THE BOARD OF EDUCATION, OF THE CITY OF CHICAGO; for the year ending Dec. 31st, 1863.

This is a pamphlet of 103 pages, containing the reports of the President of the Board of Education; the Superintendent of Public Instruction; the Principal of the Chicago High School; the Rules of the Board of Education; the list of Schools, Principals, and Assistants, with their Salaries; and a variety of other facts of interest to those engaged in the business of education.

The reports are well written, and give a very full account of the present condition of our liberal and enlightened system of Public Schools.

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### Editorial.

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ILLINOIS STATE MEDICAL SOCIETY.—Before this number of the EXAMINER will reach its distant readers, the Annual Meeting of this Society will be in Session in this city. We are hoping for, and anticipating a full meeting. The Committee of Arrangements have made their programme for a session of three days at least. The Illinois State Medical Society has gained the reputation abroad, of being one of the most active State organizations in the country. We are confident this reputation will be increased by the results of the present meeting. We shall give a full record of its proceedings in the next number of the EXAMINER.

THE SPRING AND SUMMER TERM IN THE CHICAGO MEDICAL COLLEGE.—The summer course of instruction in this institution is progressing with regularity and interest. There is a class of excellent young men in attendance, and the advantages they enjoy could hardly be excelled. They have four regular clinics in the Wards of the Mercy Hospital each week, under the charge of Professors DAVIS and ANDREWS; two in the College Dispensary, under the care of Professors ANDREWS and BYFORD; and one in the Soldiers' Home, under care of Professor HOLISTER. In addition to these ample facilities for gaining practical knowledge, they have from one to two Lectures and Examinations in the various branches of medical science daily, with dissections, and access to the reading-room and museum of the College.

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MORTALITY AMONG THE INTERNES OR RESIDENT PHYSICIANS IN HOSPITALS.—We learn from our exchanges that during the past year, and indeed during several of the past years, there has been a large ratio of mortality among those engaged as Internes, Assistants, or resident physicians in the Bellevue Hospital, New York, as well as in some other large general Hospitals. We observe that this high degree of mortality has resulted chiefly from continued fever; and has been attributed, by some, to the admission of many cases of Typhoid and Typhus fevers into the same wards with the sick of other diseases, and the consequent diffusion of the fever poison throughout all departments of such institutions. Without disturbing, at present, the question concerning the specific contagiousness of continued fevers, we are confident that nearly all the mortality among the students and Assistants in Hospitals and Colleges could be prevented by proper attention to matters of personal hygiene. During the last fourteen years we have been on duty constantly as Attending Physician to a General Hospital, into the wards of which, both Typhoid and Typhus fevers are freely admitted. During all the time, either advanced students or recent graduates have been employed as Internes or Assistants, boarding and lodging in the institution; and large classes have

been daily admitted into the wards for clinical instruction. Of all those employed as Internes or resident Assistants, not more than four have suffered attacks of continued fever, and none of them have died. From personal observation, we are satisfied that all those who suffered attacks, neglected free exercise in the open air, and their sleeping-room was in the basement or lower floor of the Hospital. Again, during all the fourteen years past, classes of students varying from 20 to 75 in number, have visited the hospital for clinical instruction, at least four times a week, during each annual period of Medical College instruction. They have surrounded the beds of continued fever patients in every stage of the disease as freely as those of any other class; but in no instance have we been able to trace an attack of fever among them to such intercourse. During the first three years of our connexion with a medical college, we found each year, when about one-third of the session had passed, a considerable number of the students began to complain of the premonitory symptoms of typhoid fever. In only a small proportion of the cases did the disease assume any severe form, and in only one case did it terminate fatally. Its frequent occurrence, however, caused us to inquire carefully concerning the circumstances under which it was developed. We found that in almost every instance the students attacked were lodging in small, ill-ventilated rooms, taking no out-door exercise except simply from their rooms to the college and back, and often reading late at night. The connexion between these circumstances and the attacks of sickness, was so obvious that we have ever since embraced the opportunity, at an early period in each College term, to call the attention of the classes to them, and to insist that every student should take a reasonable amount of active, vigorous exercise in the open air, and keep his lodging room well ventilated. Since we have adopted this course, eleven years of College and Hospital instruction have passed by, and not a single member of the classes attending the institutions with which we are and were connected, has died from continued Fever, whether Typhoid or Typhus. So important do we deem open air exercise for those who are daily

crowding the wards of Hospitals and the Lecture-rooms of Colleges, for instruction, that in selecting a location for the Chicago Medical College building in this city, we purposely placed it at such a distance from the Mercy Hospital as to require a brisk walk of from *ten* to *fifteen* minutes to pass from the clinical wards of the latter to the Lecture-rooms of the former. This walk, often converted by the students into a playful run, most effectually dispels whatever of deleterious miasm or infection they may have imbibed in their contact with the sick. We are fully satisfied that, while every Medical College should embrace an Hospital as a necessary part of its system of medical instruction, a due regard for the health of the classes who attend, forbids that both should be under the same roof. If the medical officers of Hospitals and the faculties of Colleges would more rigidly require active out-door exercise and thorough ventilation of lodging rooms, on the part of internes and students, we are quite sure much sickness and many deaths would be prevented.

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THE NEW YORK MEDICAL INDEPENDENT AND PHARMACEUTICAL REPORTER.—This is the title of a new medical Journal published in New York. It is issued every week, and each number contains sixteen pages: Price, two dollars per annum. Publishing-office, 447 Broome Street.

We welcome the *Independent* to our exchange list, and should doubtless welcome the Editors into the field of medical journalism, if we knew who they were.

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PRESERVATION OF GUM AND STARCH PASTE.—By John M. Maisch. The paste made by gum tragacanth and gum arabic, which is so extensively used by the apothecaries in this country, acquires, particularly during the warm season, a very unpleasant and even offensive odor in consequence of fermentation, which soon commences on exposure to the air. Oil of cloves, alum, and other essential oils and salts, are frequently added to counteract this tendency, with but partial success, the volatile oils merely hiding to a certain degree the offensive odor developed, and retarding the fermentation incompletely. For some time past I have availed myself of the antiseptic property

of creosote, which may be added to these pastes recently made, until its odor is faintly apparent. The result is their perfect preservation, no offensive odor being disengaged, and their adhesiveness is not impaired by keeping them for months.—*Am. Journ. of Pharm.*

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TERCHLORIDE OF CARBON.—Mr. Bryant informs us that at Guy's Hospital the terchloride of carbon has been employed for many years, and that it was a very favorite remedy of the late Mr. Ashton Key, tracing its employment back, therefore, at least fifteen years. As a lotion it has acquired considerable value, and may be looked upon as a stimulant, and in a measure as a disinfectant. In sloughing and fetid ulcers it is of great use. It may be used in the indolent and weak ulcer with general advantage. The usual strength of the lotion is from *mxx* to  $\frac{1}{2}$ ss of the drug to an ounce of water. It has an agreeable odor and rapid effect. In cases of gangrene, and in sloughing phagedena, it may be employed in its concentrated form with some confidence, a wound thus affected rapidly taking on a more healthy aspect. Upon the whole, it is a very valuable local stimulant, and in Mr. Bryant's estimation ranks above most of the drugs of that class now in use.—*Med. Times and Gaz. and Med. News.*

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GALVANISM IN TETANUS.—The celebrated Italian physiologist, Matteucci, has addressed a communication to the French Academy of Sciences upon the employment of the continuous electrical current in the treatment of tetanus; and in a note to M. Flourens he earnestly begs that the attention of physiologists and physicians may be turned to the subject, as he firmly believes that a therapeutical procedure will result, which, if it do not effect a cure in this terrible disease, will, at all events, produce great diminution of suffering. Seeing recently, in an American journal, the fact stated, that the continuous current had been advantageously employed in a case of hydrophobia, he called to mind a case of tetanus published many years since by Nobili and himself. It is well known that a condition of tetanic contraction may be excited under two circumstances, viz., the interrupted passage of the electric current into the nerves and muscles of an animal at very short intervals, and the continuous passage of the current into the nerve in the opposite direction to its ramifications. It has been the object of some of Professor Matteucci's communications in the *Philosophical Transactions*, to explain how this is brought about by

the production of secondary polarities. What, however, we have to do with at present is the fact that a nerve which has in this way acquired the property of exciting tetanic contractions, instantly loses such property as soon as it is submitted anew to a continuous current. Reasoning from analogy, it was thought that tetanus might be assimilated, as regards the state of the nerves, with the condition of an animal in which interrupted currents or a continuous inverse current have been employed; and the hope was entertained that a direct continuous current would produce the cessation or diminution of the contractions in the one case as in the other. And so in effect it was found that the patient, while he was subjected to a continuous electric current from 30 to 40 pairs of plates, no longer suffered the same violent convulsions, and was able to open and shut his mouth. This amelioration continued during several minutes, after when the contractions returned, notwithstanding the passage of the current was suspended awhile, and then reproduced with from 50 to 60 pairs. Amelioration again followed; and these alternations continued during several hours, the salutary effects of the current gradually diminishing, and at last ceasing entirely.—*Med. Times and Gaz.*

ANÆSTHESIA FROM CHLOROFORM PROLONGED BY THE HYPODERMIC INJECTION OF MORPHIA.—Translated by Dr. HOMBURG, Cincinnati. The following observations of Professor Nupbaum, of Munich, are likely to prove of vast importance not only in surgical, but also for internal medical treatment, for instance, in reference to the therapy of the tetanus, various neuroses, etc., yea, even in experimental physiology. Since it appears to us desirable that the valuable experiments in question should be confirmed by other surgeons and physicians so that experiments may be had in the most varied manner, we hasten to communicate them briefly, even without waiting for a greater number of cases bearing thereon.

Professor Nupbaum removed, about three weeks ago, from a patient aged forty, a miller, residing in Foelz, a great sarcomatous tumor on the neck, using chloroform in the usual manner. To silence pains after the operation, which required a complete separation of plexus cervicalis, he injected beneath his skin, while still under the influence of chloroform, one grain of acetate of morphine. The person operated upon did not subsequently—as usual—awaken from his narcotism, but slept on, breathing regularly and calmly, uninterruptedly, for twelve hours. He endured during this sleep the deepest stitches of



the needle, incisions into the skin, and the application of red-hot iron, etc., without even the slightest reaction against the same. Finally, he awoke from deep slumber, exactly as if he had just passed through a chloroform narcotism.

A few days later, Prof. Nupbaum most pleasingly surprised at this exhibition, and the effect just stated of subcutaneous application of morphine on a second patient, a Mr. M., in Swabia, upon whom, in consequence of a cancer, he had just executed the resection of the upper maxillary bone without removing the alveolar process during the chloroform narcotism, and had finally, on account of cancerous irritation in the facial skin, undertaken a transplantation in the neighborhood of the temples and forehead by closing the wound. This patient, too, slept with complete absence of all feeling during eight hours amid the most quiet breathing. His pulse remained in rhythm and number perfectly regular. The effect of the narcotic appears the more surprising in this case, because the same dose of acetate of morphine had a few days previous been injected hypodermically without producing sleep, and still less anæsthesia.

Two other cases embrace a woman fifty years old, and a seven year old boy, upon both of whom only about half a grain of morphine had been subcutaneously injected; and both slept from five to six hours the same quiet sleep, and enjoyed an equal anæsthetic condition. Another case, in which the experiment in question failed, has up to now not been observed by Professor Nupbaum.

From the preceding observations appears to arise a physiological experimental point, that must on further use tend doubtlessly to most gratifying results. Obviously it appears as if the hypodermic application of morphine, and perhaps of other narcotics, for instance, of atrophia, might during the chloroform narcose preserve for several (six to twelve) hours that peculiar condition of the central nervous system, of which we know—it is to be lamented—as yet so little, and which is temporarily produced by the effect of inhaled chloroform, and to do this by greater or lesser doses of morphine; as long at least as the effect of morphine is maintained; and of course also the arracothesy, which to produce through the inhalation of chloroform is, as well known, one of the most beneficent inventions in aid of suffering humanity.—*Cincinnati Lancet & Observer*.

**TREATMENT OF TENDINOUS RHEUMATISM BY THE EXTERNAL EMPLOYMENT OF SULPHUR.**—Tendinous rheumatism, according

to Dr. RENARD, differs from acute rheumatism by the absence of the general symptoms, and from the chronic by the presence of local inflammatory symptoms. Dr. Renard suffered from this complaint himself after an attack of acute rheumatism, for which he was copiously bled. The parts affected were the tendons of the hamstring muscles, and no improvement resulted after a long course of diaphoretics, camphor, terebinthinate, and other liniments, and the administration of the solanaceæ. At last Dr. Renard saw a passage in an English medical journal, stating that persons suffering from rheumatism in the legs had only to dust the inside of their stockings with sulphur. He immediately employed this simple remedy, the sulphur being the commercial flowers of brimstone, which contain some sulphurous acid. The curative effect was very well marked, for Dr. Renard walked in the evening, then renewed the sulphur in the stockings before sleeping in them, found himself very much relieved the next morning, and nearly quite cured on the morning after. A few days later, he left off the brimstone, and the pain reappeared in the soles of the feet, but yielded very soon to the reapplication of sulphur. Since the year 1857, when he was first attacked, the same experiment was repeated every winter when he was suffering from chronic tenodynia, either in the hams, the heels, or the elbows. He felt under the influence of the contact of the flowers of brimstone, the skin becoming hotter, slightly excited, and more disposed to sweating; and, as soon as this effect was produced, the relief of the pain seemed to be immediately marked. Whatever may be the explanation of the manner in which sulphur exerts its curative agency, Dr. Renard affirms that it has a beneficial effect upon the rheumatic pains of the tendons, and that this action is the more rapid and certain in proportion as the tendons are more superficial and the sulphur is kept more closely over the painful parts.—*B. & F. Med. Chir. Rev.*, Jan. 1864, from *L'Union Medicale*, April 21, 1863.

TRAUMATIC TETANUS SUCCESSFULLY TREATED WITH CHLOROPHORM AND SUBSEQUENT USE OF BELLADONNA.—Dr. L. C. LORD reports (*San Francisco Medical Press*, Oct. 1863) the following case: Some weeks since, in the St. Mary's Hospital in this city, there was admitted a young man with fracture of the os femoris in its upper third; the fracture, which was comminuted in character, was the result of a fall from one of the city cars, while in motion.

The injury was treated by the application of Desault's long-

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extending and counter-extending splint. Shortly after the limb was dressed in this manner, tetanic symptoms presented themselves in the form of trismus, which ultimately became general, the whole body being thrown into violent muscular contractions. Soon after the supervention of these symptoms, the patient was put under the influence of chloroform by inhalation. He was maintained in a state of constant anæsthesia for near seven hours, consuming, in the meantime, several ounces of chloroform, administered by means of an inhaler, so constructed, that but a small amount of the article could escape without being breathed. After the use of chloroform for that length of time, the tetanic symptoms so far disappeared, that the inhalation was suspended, and the patient was ordered belladonna; opiates were also given him. On the following day, trismus again ensued, when resort was had again to the chloroform. The closure of the lower jaws was quickly relieved, whereupon the inhalation was discontinued.

The remedy to which I am inclined to refer the rescue of the man's life in this case, was chloroform. The inhalation, as will be perceived, was carried to a much greater extent than usual, or than prudence would dictate in any other than a hopeless case. After the discontinuance of the anæsthetic, the patient presented symptoms of aberration of mind, which were present for several days afterwards, though they gradually became less, and, in a week afterwards, they disappeared. The patient is yet under my charge, in every respect doing well, though time enough has not yet elapsed to have effected entire union of his fractured femur.

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HOSPITAL GANGRENE.—Dr. FRANK H. HAMILTON, Jr., Asst. Surg. U. S. A., has given (*American Medical Times*, Oct. 31, 1863) a tabular statement of 33 cases of hospital gangrene which occurred in the McDougal General Hospital. It appears from this table that but two of the cases terminated fatally, and these some days after the gangrene had been arrested. In one of these the patient died from exhaustion, the result of extensive suppuration in the knee-joint, the wound having been in a perfectly healthy condition for several days. In the other the patient died from dysentery, his wound having put on a healthy action two weeks before his disease.

In one case where nitric acid was used, the disease was not arrested, and at the end of ten days it was found necessary to amputate the leg above the knee. The stump healed by the first intention. An analysis of the table shows that the average

duration of all cases, under all treatments, amounts to 12.15 days.

Number treated with nitric acid . . .	18
Average duration of disease . . .	16 days.
Number treated with sol. bromine . . .	14
Average duration . . .	6.6428 days.
Number treated with iodine . . .	1
Average duration . . .	7 days.

These results are decidedly favorable to bromine.

**VARICOSE VEINS.**—Mr. SKEY remarked (*Lancet*, Jan. 2, 1864) that the treatment of varicose veins involves two objects: "1st, the increase of power to these organs; and 2d, the turning the current of the venous circulation into healthier channels. The first is effected by the liberal administration of nutritio-stimulants. The second object has tested the inventive faculties of many surgeons. I leave it to others to commend the various schemes adopted by them. I discountenance, from long observation of its incompetency to cure, the employment of the needle, whether through the vein or under it, single or double. It has these objections: 1st, it is not unattended with danger; and 2d, it fails to obliterate the vein, except at the point of its application, mainly because the applications cannot be safely made in numbers proportionate to that of the veins affected. I have at present in St. Bartholomew's Hospital a woman under treatment for varicose veins of the leg, whose limb was jeopardized by the employment of the needle a year ago. A long illness, with severe inflammation and extensive abscesses, followed. The same limb is again under treatment for the original disease. There is no danger in making any number of small eschars on the most projecting surfaces of varicose veins, if made with an escharotic composed of two-fifths of pure potash and three-fifths of powdered lime. This powder, well combined, is made into a paste with alcohol. Whether other escharotics are dangerous in their operation on veins, I do not stop to inquire; I only know that the Vienna paste, combined as I have above described it, is not. These eschars may be made in any number proportionate to the extent of the disease. I have treated perhaps 250 cases in the course of the last ten years, and I continue to treat them, by the same means. The paste is applied over the most projecting parts of the vein in the following manner: through a series of about four layers of adhesive plaster a circle is cut of the size of a threepenny-piece or smaller. The influence of the escha-

rotic extends through the vein; and it is curious to observe that from the hour of its application the entire vein appears to be obliterated, and is undetectable to the finger on pressure. From ten to twenty-five eschars may be applied between the ankle and the knee. Twenty minutes suffice for the full operation of the escharotic, and an average of one month for the cure. In very weak constitutions the ulcers will heal very slowly, unless well-directed efforts be made to give force to the general system."

#### STRUCTURE OF INDURATED CHANCRE OF THE PREPUCE.—

In a paper read before the Biological Society of Paris, M. Ordenez has given the following summary of the appearances observed by him on making a histological examination of indurated chancre. 1. The epidermis is considerably thickened around the ulcerated part. The most superficial cells all present a central nucleus, tolerably large, with from one to four nucleoli; contrary to what is met with in healthy epidermis, where the cells lose their nuclei as they approach the external surface of the skin. 2. The interpapillary digitations in the true skin are larger at the level of the chancre than in the healthy skin. The epithelial cells are very closely packed, larger than in the normal state, and infiltrated by a very transparent fluid, coagulable by alcohol. 3. At the level of the papillary layer of the skin, small hemorrhagic clots may readily be detected, produced, no doubt, by the rupture of the small capillary loops distributed in the papillæ. Hæmatosine, mixed with red corpuscles in various stages of change, is effused in patches, between the papillary and the mucous layers. 4. The meshes of the cutis vera, from the papillary layer to its deepest portion, are infiltrated with a large quantity of plastic lymph. On merely making thin slices of the chancre, a large quantity of a very transparent, slightly viscid fluid, coagulating slowly on contact with the air, may be made to escape by pressure or by the action of the cutting instrument. This liquid, examined microscopically and with the aid of reagents, appears to be plastic lymph, or blastema. 5. The papillæ are increased in size, without being altered in shape. They are infiltrated with a large number of embryonic or transitory elements of the fibrous or connective tissue. These consist of round or oval nuclei, varying in diameter from .00016 to .00028 and .00036 of an inch; of small fusiform, fibro-plastic bodies in an ordinary state of evolution; and of small bundles of fibres of fibrous or connective tissue in progress of formation, and still presenting

nuclei. 6. In the substance of the derma are to be found a number of fibrous cords, with perfectly developed fibres, and presenting a brilliant white aspect, contrasting remarkably with the adjacent tissue. This appearance is best presented by recent sections of the induration, examined by the aid of distilled water; it is also present, but less distinct, in specimens that have been preserved in alcohol or glycerine. M. Ordóñez thinks that the alterations in the skin which he has described, satisfactorily explain the peculiar induration characteristic of the infecting chancre.—*Gazette Medicale de Paris*, 11 Octobre, 1863.

**SUBPUBIC PUNCTURE OF THE BLADDER.**—To avoid the danger of peritonitis, which sometimes follows the operation of puncturing the bladder above the pubes, M. Voillemier has devised the following operation. The patient is placed on his back, with the legs slightly separated; the pelvis is raised by a thick cushion, so as to bring the pubes forward, and to prevent the distended bladder from embarrassing the operator. An assistant, standing at the left side of the patient, draws the penis downwards and backwards. Sitting at the patient's right side, the surgeon feels with his right fore-finger for the suspensory ligament, and with his left hand he introduces by the side of this ligament a trocar, curved so as to pass round the pubic bone. During this stage of the operation, the instrument is carefully supported and guided by the right hand, lest the trocar should turn too suddenly and come into contact with the bone. The canula having entered the bladder, the trocar is withdrawn. The operation was successfully performed by M. Voillemier, in the Hospital St. Louis, on October 14th. The cicatrization of the wound was complete in forty-eight hours; and, at the time of reporting, no trace of the operation remained, beyond a fibrous cord indicating the passage of the instrument.—*Brit. Med. Journ.*, Jan. 23, 1864, from *Gaz. Med. de Paris*, 14 Nov., 1863.

**DIET IN DIABETES.**—Dr. EDWARD SMITH concludes some interesting observations on this subject with the following summary of the proper diet in diabetes:—

1. *Fluids.*—To be limited by degrees daily until they shall not exceed five pounds and a-half in both fluid and solid food. Of this quantity two or three pints should consist of new or skimmed milk, and one pint, or less, of tea. In the cold season and at night they should always be given when hot. Of all alcohols brandy is the best, and may be given with water only,



or added to milk, or beat up with egg and milk, and given several times daily. No fluid should be given in greater quantity than half a pint at a time; and, when milk is reduced in volume by cooking, the daily quantity of fluid must be made up by an additional supply of the same or other fluid.

2. *Solids*.—Dr. Prout's combination of eggs and milk (with sharps substituted for bran) is excellent. Four ounces of sharps and 4 oz. of peas, beans, or lentils may be made into bread or pudding, with milk, or into omelettes with eggs and herbs. Eggs and gelatin may be given when starchy food cannot be altogether intermitted. Eggs, gelatin, cheese, gluten, bread, meat, fat, and oils may be given as largely as they can be digested. The free use of salad oil should be urged, whether in the cooking of fish or flesh, or in the use of water-cress as a salad or drunk alone, so that several ounces may, if possible, be consumed daily; but as there are in all persons preferences and dislikes in reference to particular fats, that kind—whether butter, suet, oil, or fat of meat—should be allowed, which is the most agreeable. Four oz. of sharps, 3 oz. of wheaten flour, 5 oz. of peas, 1 lb. of meat, 2 oz. of cheese, 2 pints of milk, and 3 eggs, will afford more than about 13 oz. of carbon and 1 oz. of nitrogen daily.—*Lancet*, Feb. 6, 1864.

PRACTICABILITY OF ARRESTING THE DEVELOPMENT OF EPIDEMIC DISEASES BY THE USE OF ANTI-ZYMOTIC AGENTS.—Dr. ROBINSON read a paper on this subject before one of the sections of the British Association for the Advancement of Science, at its meeting at New Castle.

The author commenced by referring to the circumstance of the analogy between many of the phenomena of fevers and other zymotic diseases, and the ordinary process of fermentation having been perceived and recognized by Hippocrates and the oldest writers on medicine. Their idea was that a poisonous ferment, existing in the atmosphere, entered the mass of blood and induced in it a series of changes, which gave rise to the excessive heat, and other peculiarities of that class of diseases—at the present time, this doctrine, modified by the discoveries of Liebig and other chemists, has been adopted by most physicians, and forms the basis of the classification of disease framed by Dr. Farr, and used by the Registrar-General. It thus supposes living germs to exist in the atmosphere, which, when introduced into the body, give rise to a specific and regular series of morbid actions, pursuing a definite course in a definite time, as in small-pox—those germs being disclosed and



multiplied, and producing others capable of reproducing in other bodies the same succession of changes—other lethologists have supposed that the atmospheric poison acts on the blood chemically, by giving rise to what may be termed catalytic actions—while the author is disposed to believe, from what he saw during the cholera epidemic in Newcastle in 1853, that some of these volatile organic matters in the atmosphere are capable of acting on the human body as direct poisons, and that this inanimate volatile poisonous matter also furnishes nutrition to the organic germs suspended in the air. After these preliminary remarks, he proceeded to refer briefly to a number of scattered facts, which seemed to him to indicate the existence of a great principle, which might hereafter be found applicable to the prevention or mitigation of epidemic diseases by the direct use of substances capable of arresting the process of morbid fermentation. He mentioned the following facts as converging to this conclusion: 1. Antiseptic substances, ranging from simple innocuous matters, such as sugar, up to the powerful metallic poisons, such as corrosive sublimate, and forming a very numerous and diversified group, have long been known to be capable of arresting the putrefaction of animal and vegetable structures. 2. The same substances prevent the formation of fungi, as is seen in the use of solutions of metallic salts in the taxidermy in the prevention of dry rot, &c. 3. Many of those agents are known to arrest at once the process of fermentation, as, for instance, sulphurous acid, and Emi and other chemists have observed under the microscope the rapid stoppage of the vitality of the yeast plant when a solution of arsenious acid was added to the fermenting liquor. 4. The formation of the fungus in and on the plant, which causes the vine disease, is prevented by applying sulphur to the affected vines. 5. In Cornwall it is believed that the arsenical fumes from the tin-calcining furnaces exercised an influence over the potato-plants in the neighborhood, which preserved them from the disease then affecting other parts of the same county. [A statement to this effect, signed by Captain Charles Thomas, Sen., of Dolwath, and sixteen cottagers, was here read.] 6. It has been found that when a species of fermentation has taken place in the human stomach, resulting in the development in large quantities of a minute organism (the *sarcina ventriculi*), this morbid action can be controlled and stopped by the direct anti-zymotic influence of certain salts, such as sulphate of soda, in doses perfectly compatible with the patient's safety. 7. In different parts of the world, among different races, a belief has

long existed that certain antiseptic substances, of which arsenic may be taken as the type, are capable of acting as antidotes or preservative and curative agencies against atmospheric and other poisons, and in some cases that popular belief has proved to be well-founded. The experience of the multitude discovered the value of arsenic as a cure for ague long before it was recognized as such by physicians. The arsenical fumes of certain works in Cornwall were stated by the late Dr. Paris to have stopped the ague, previously endemic there. More recently it has been stated that the arsenic eaters of Styria are peculiarly exempt from fevers and other epidemic diseases. And in India the natives have long used arsenic as an antidote for the poison of snakes. Dr. Robinson concluded by expressing a belief that these scattered observations were not only sufficient to justify and necessitate further inquiries in this direction, but seemed in themselves to shadow forth the outline of a great law which might at some future time be productive of immense benefit to mankind.—*Med. Times and Gazette*, Sept. 26, 1863.

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THE ORIGIN OF COW POX AND THE NATURE OF VACCINE VIRUS.—Investigation on this subject in the Paris Academy of Medicine, has led to the following conclusions:—

1st. That vaccine virus (as a thing separate and apart) has no existence.

2d. That the pretended vaccine virus, which we consider as antagonistic to, and neutralizing the variolus virus itself.

3d. That the equine and bovine species are subject to an eruptive malady, which is identical as regards its nature, with variola of the human species.

4th. It is demonstrated that the same is the fact as regards several other species of animals, pigs, sheep, dogs, goats, apes, etc.

5th. The local and general phenomena with animals is the same as those observed in man. The only difference as regards the pustules are those which depend on the structure of the skin and the number of the hairs.

6th. As in the human species, so in the equine and bovine, variola may appear sporadically or epidemically.

7th. From the horse we may inoculate the cow, and reciprocally.

8th. From the cow we may inoculate, without difficulty, individuals of the human species, provided they have not had spontaneous or inoculated variola.

9th. The cow, the horse, and several other species may be inoculated with variolus matter from the human species.

10th. When a variolus epidemic occurs among men, it often extends itself, by contagion, to other animals.

11th. An epidemic of variola may commence among animals, and extend to man.

12th. Inoculated variola produces a much less degree of general reaction, than does variola developed by contagion. This is true in both man and lower animals.

13th. The pustules which result from inoculated variola, are often limited to the points inoculated.

14th. When a secondary eruption is produced, it is almost always insignificant, and composed of a small number of pustules.

15th. In a general manner we may say that the variola of animals is more discrete, and less severe, than that of the human species.

16th. That the dangers of inoculation of variola in man have been much exaggerated. The unprejudiced study of what has been written on this subject will convince of this.

17th. It is probable that animals, as man, are subject to aphthous eruptions.

18th. But the *maladie aphteuse*, as it is described by writers on veterinary medicine, is nothing else than variola.—*Medico Chirurgical Review*.

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DIVDED TENDO-ACHILLIS UNITED BY SILVER WIRE.—Dr. G. L. SIMMONS, of Sacramento, relates (*Pacific Med. and Surg. Journ.*, Jan. 1864) a case in which the tendo-Achillis of a man was completely severed accidentally about an inch from its attachment. Dr. S. found the upper edge of the cut tendon retracted an inch and a quarter into its sheath. Dr. S. flexed the limb, drew down the retracted tendon by strong forceps, and united the cut ends with a large-sized silver ligature; the leg was kept flexed for a few days with adhesive straps, after which the usual slipper and dog-collar were used. In a few weeks the patient was able to walk in a high-heeled shoe with but little pain. Scarcely any stiffness resulted from the injury, and at the date of the report he could walk freely with the slightest perceptible halt. The "propriety of using silver wire in uniting tendons," Dr. S. says, "can hardly be questioned. In the above case the result was all that could be desired; and, although position alone might possibly have accomplished the same end in the same time, yet it is probable that the perfect

approximation of the parts by the ligature assisted in defining the bond of union until it became strong. In this case, after the uniting mass was perfected, I removed the silver wire, as the play of the tendon caused the foreign body to slightly irritate the neighboring tissues.

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**TREATMENT OF WHOOPING COUGH BY BELLADONNA AND SULPHATE OF ZINC.**—E. Garraway, writing of whooping cough, says:—The preponderance of opinion is in favor of its being a nervous disorder; and appears to have as much claim to be so considered as asthma, chorea, epilepsy, or other convulsive disorders which it has been impossible to localize.

The treatment by belladonna and sulphate of zinc, in some fifty or sixty cases, was entirely successful: it was given in extract, either diffused in water with the zinc, with sufficient syrup to make it agreeable to children, or, to those who were old enough, in pills;—the dose being from one-sixth to one-fourth of a grain, of extract of belladonna, and half a grain of zinc, three or four times a day, steadily increasing the amount till, at the end of three weeks, children would be taking from four to six grains of belladonna, and twice that quantity of sulphate of zinc, daily.

So far as investigations went, it would appear that both the tolerance of the remedy and the speedy subsidence of the disorder, were in inverse proportion to the age of the subject—a child eight or ten months old bearing much larger proportionate doses, than one from eight to ten years.

When the pupils have become dilated, the dose was diminished for a few days.—*Lancet*.

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**DIGITALIS IN THE TREATMENT OF EPILEPSY.**—A nursing child, not quite two years old, was brought to Prof. Clark's clinic, to be treated for "fits," from which it had suffered for the last twelve months, occurring every three or four weeks, limited to one a day, though on one day it had seven.

The character of the disease was evidently epileptic, and Professor Clark determined to give the digitalis a trial. The child was accordingly put upon one drop of the tincture three times a day, with directions to increase the dose gradually, as circumstances might indicate. No attack occurred, however, since commencing with the tincture, one drop of which had been taken regularly, three times a day, until four months had elapsed, when the child was last seen at the clinic.

Prof. Van der Kock has had some success in the treatment

of epilepsy, by applying cupping glasses, with scarification, or leeches, to the back of the neck, followed by seton, or issue, with a view to moderate the exalted sensibility of the medulla oblongata, and prescribing internally the infusion of digitalis, with small doses of tartar emetic, if the patient can bear them without nausea, to moderate still further the excited vascular action; but he says he never succeeded in curing a case with digitalis alone, though he believes it contributes much towards promoting the cure.—*Cincinnati Lancet & Observer*.

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**OXYGEN GAS.**—At a recent meeting of the Academy of Sciences at Munich, Baron Liebig recounted various experiments which proved clearly that oxygen is not only evolved from the atmosphere by plants, but also in tolerably large quantities by decomposition of water in the bodies of flesh-eating animals. He thinks that a knowledge of this fact will throw quite a new light on the processes of nutrition and digestion.—*London Lancet*.

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**PROFESSOR TROUSSEAU ON APHASIA.**—This popular professor, in one of his late clinical lectures at the Hotel Dieu of Paris, dwelt on a peculiar complaint, the symptoms of which are the inability in the patient pronouncing certain words, and of expressing his thoughts, retaining at the same time the full use of his intellectual faculties. M. Broca, who first directed attention to this malady, called it *aphæmia*, which term M. Trousseau, aided by the celebrated philologist, Littré, considers wrong, as it really means "bad repute." *Aphasia* is better.—*Id.*

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#### SYMPTOMS OF POISONING FOLLOWING A DOSE OF DISULPHATE OF QUININE.

*To the Editor of THE LONDON LANCET.*

SIR:—I beg to forward the accompanying case, as I think it may prove interesting to many members of the profession:—

I was called in great haste one evening to a case of supposed poisoning. On arriving at the house, I found the man much better, but thought it safer to administer an emetic. On making inquiries, I found that he had prescribed for himself a mixture of sarsaparilla and quinine, which he had purchased from a druggist. The symptoms of poisoning came on after the first dose of this mixture: within a few minutes there was severe pain and burning in the stomach; the face swelled; the

mouth felt drawn forwards; then the legs and body swelled, and became very red, with intolerable itching, followed by a rash of urticaria. I thought it possible that some poison had become accidentally mixed with his mixture, and so the case rested for a time. However, shortly afterwards the man had an attack of pneumonia, and during his convalescence quinine was prescribed. Upon taking the first dose (two-thirds of a grain, Howard's), all the symptoms above described came on, clearly proving that the quinine was the original cause of the mischief.

I think this case interesting from the singularity and violence of the symptoms produced by so small a dose, and also as showing how a druggist may be unjustly blamed from an idiosyncrasy of a patient.

I am, Sir, your obedient servant,

E. H. ROE.

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#### UTERINE ACTION DURING SLEEP.

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*To the Editor of THE LONDON LANCET.*

SIR:—I have read with great interest Dr. Palfrey's case in reference to the above subject, and, in confirmation of his opinion, beg to forward you the following statement:—

I was called on the morning of the 20th of October last to see a lady in her second confinement. Her residence being within a few doors of my own, no time was lost in visiting her. I found the child's head resting upon the perineum, and in a few minutes she was safely delivered of a fine healthy son. On going to bed the previous night she felt quite well, and had no intimation of the event about to take place, except a slight discharge, of which she took no great notice.

In this case, there is no doubt that the whole stage of dilatation, and partly that of expulsion, had taken place during sleep, as from her awaking until the birth of the child no longer period than half an hour could have elapsed. Her first confinement some twelve months previously had been very severe, occupying some forty-eight hours, with delivery by forceps. In this instance there were only three or four labor pains, and no after-pains whatever.

I am, Sir, your obedient servant,

JOHN HARVEY, M.D.



# CHICAGO MEDICAL COLLEGE.

## Medical Department of Lind University.

The regular Annual Lecture Term in this Institution will commence on the second Monday in October, and continue until the first Tuesday in March following. Clinical Lectures *daily* throughout the term.

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